User manual for Contool 2000xp

Version 1.1 (release 2882)

Guidelines on how to work with Contool 2000xp,
especially from a technical point of view

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1 Introduction

Contool 2000xp is the successor of the old Contool application which was used to programme modules in the original CP series.

The new Contool 2000xp is an application offering the complete set of tools needed to work with the new Concept 2000xp – also referred to as the XP series. Conson is renowned for its backwards compatibility and this quality persists in Contool 2000xp since it also fully supports the original CP series.

In short Contool 2000xp supports the complete process when working with a new installation: projecting an installation with the end user, making a quotation, programming and documenting an installation is all integrated in the intuitive workflow.

Even though this user manual focuses on the use of Contool 2000xp from a technical point of view, it is extremely important to point out that the purpose of Contool 2000xp is to make a piece of software which is easy to use for non-technicians. The end user is in focus due to the fact that it all adds up to provide a user-friendly view of the installation on a blueprint which can be directly operated by the end user.

Even though Contool2000xp is now released in version 1.0, we will continuously be adding more features and will appreciate any feedback you may have. We cannot guarantee that your feedback will be handled right away but we do guarantee that all remarks will be recorded and taken into consideration.

2 Quick start guide

We strongly advise you to read the complete manual carefully before creating your first project, but we also realize that sometimes time is short. Consequently, we have summed up the most important key points in a quick start guide.

When planning an installation, it is advisable to assign a fuse for each XP11 and perhaps even an HPFI relay if it is economically feasible.

The default IP address is 192.168.1.17 when connecting to the XP130. Best practice is to use a notebook with a wireless connection enabling you to move freely around the installation with Contool 2000xp at hand. All XP modules and XP sensor will be automatically detected when connecting to XP130 (in online mode). The modules will be placed on the fuse box tab in a random order, while the XP sensor will be listed on the floor plan tab (on the inline tab “Detect XP sensors” in “Design state”).

Verify that the number of XP modules and XP sensors match the expected number in the installation. If this is the case you can assume that all modules and sensors are wired up correctly since they all respond. If the numbers do not match try to manually detect them as described in section 6. If you are still missing modules and/or sensors, you should start to verify that you have connected everything correctly.

The XP sensors must be dragged to the floor plan before they become operational in Contool 2000xp. Upload a blueprint image or similar to the floor plan to make the most intuitive installation.

Before placing the XP sensors, you need to activate each sensor by pressing the two upper buttons – see section 7.2.4. Doing so will also timestamp the detected XP sensors in Contool 2000xp and by keeping track of your route through the installation, you will know in which order to place the sensors. By bringing a wireless connected notebook, you will be able to easily verify, that all sensors are being time stamped correctly – and thus avoiding to accidently place them in an incorrect order at the floor plan.

2.1 Best practice short list

- Read the manual before you run into an accident
- Make sure you have lights available at your installation
- Your toolbox should contain: work light, wireless router (tested before you leave for the work site), an XP130, and a small working test project
- Bring enough working sockets (with cord and light bulb) to enable you to have a light connected to all outlets you will be programming
- A handy tool is to further bring a module and a switch that you are confident is working for testing purposes. Mount the switch at your XP24 at clamp B-C-D-E to make the switch run on its own “Consonbus”[1]. Mount the module at the “Conbus”[2] as the last module on the “Conbus”.

[1] The ”long” bus
[2] The “short” bus

- When programming a module it will power down and reboot. So make sure to programme in accordance to the end users' needs. And remember that it is possible to programme a module at a time if you need to.
- All switches have unique serials which cannot be overwritten
- When testing a module directly on the claps (minus to a clap) make sure to tighten the screw on the clap. Otherwise you might end up with a loose connection.
- When programming or firmware updating a module or sensor/switch all data in the module is overwritten.
- Save your project regularly using the save as… functionality and provide a new name each time (like "my project 1 – units placed" and "my project 2 – XP24 programmed"). This will enable you to go back in time to any critical point in your installation.
- Even though all naming is stored in the project – and backed up in the XP modules and sensors (with a few limitations) for restoring a project – it is still important to document the installation properly.

3 Installation

Contool 2000xp is distributed as a single installation file which currently only runs on Windows.

It is a simple installation which merely unpacks its content at the preferred installation path. By default this is at the desktop in a folder named “Concept2000xp-rev[number]”, where [number] is replaced by the revision number. This happens in a wizard:

1. Select “Run” when warned by Windows about the installation
2. Accept the license agreement
3. Select a different installation path if needed and press install
4. Close the installation wizard when all files have been unpacked

Notice that since the installation wizard merely unpacks the files, the application will not show up in the start menu neither in the control panel. If you want to uninstall the application, simply delete the folder where you installed the programme.

3.1 Project files

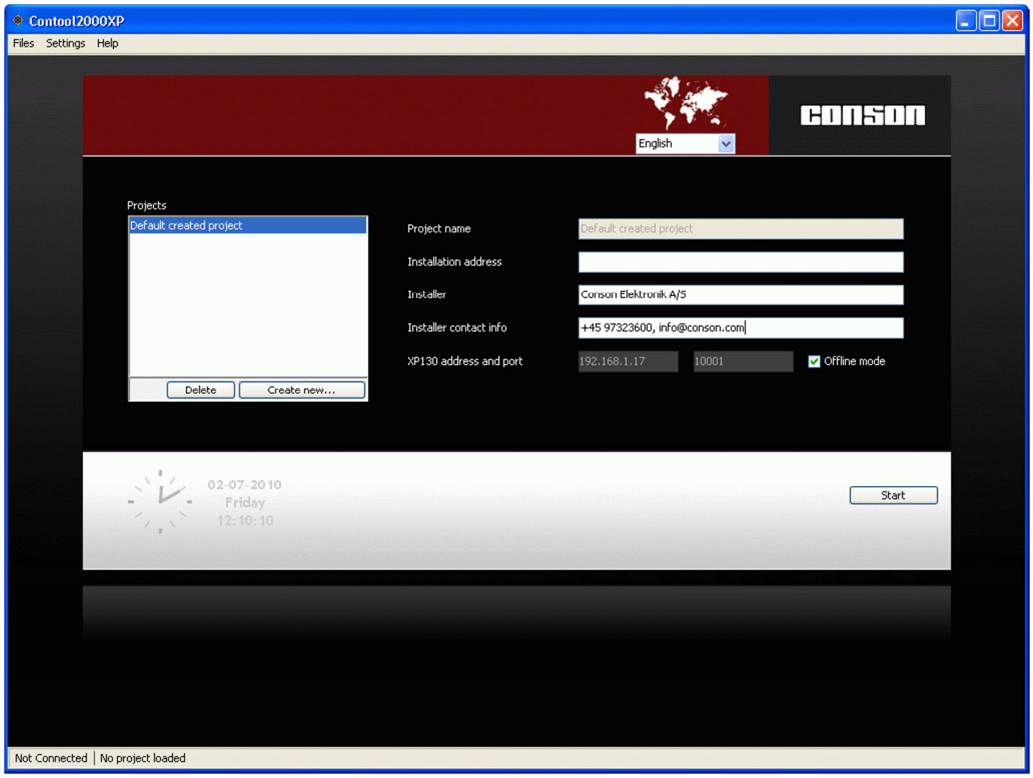
All projects in Contool 2000xp have a unique name which makes it easy to identify a project and which is also used to organize the project files. Creating a new project in Contool also creates a new folder located at [installation directory]\Projects\[project name]\.

This is useful when moving the application from one computer to another: simply copy the complete project folder. Make sure that the revision number of the destination installation of Contool 2000xp is identical with the source installation. This can be verified by looking at the installation directory – or in the “Help” menu, “About” dialog.

4 Starting a project

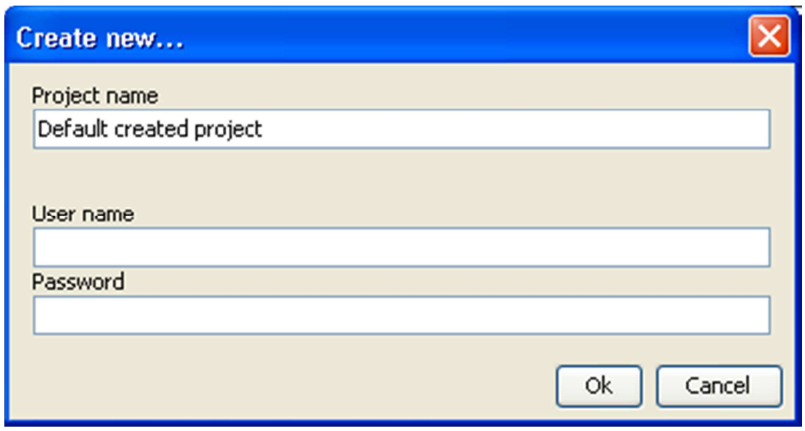
Start Contool 2000xp by clicking the .exe file named “Contool2000XP” with the symbol.

This brings up the login screen with a list of projects to the left. Initially, this list will be empty but when it is populated, selecting a project to the left will display detailed information in the fields to the right.



4.1 Starting with an empty project

Start by pressing the “Create new…” button, which will bring up the “Create new” dialog:



The field “Project name” is mandatory while the user name and password are **not** mandatory. If you choose to fill out these two fields you will be prompted to login before being able to start the project.

The most important fields to the left are the IP and port of the XP130 which you will be connecting through, and the checkbox indicating whether to start in offline mode.

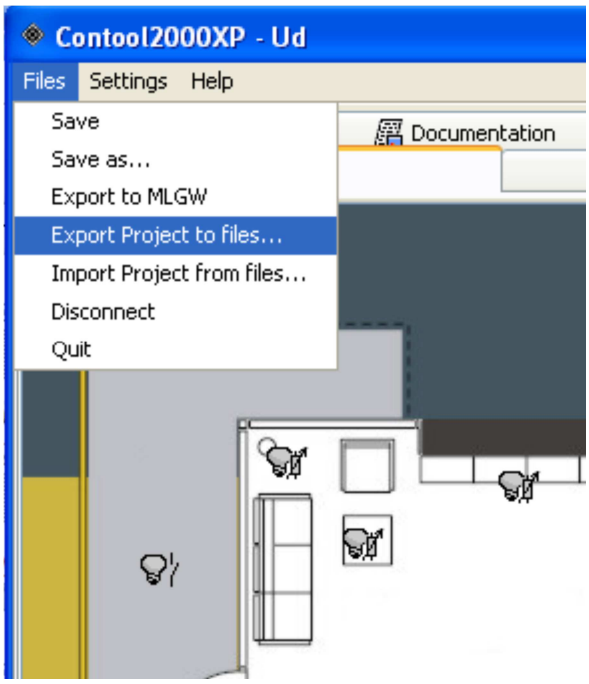
When starting a project, Contool will even in offline mode try to start its web service by binding it to port 9090. Due to the fact that only one service can be bound to a port, an error message will occur if trying to start a project in more than one instance of Contool. The second started project will work just fine – only the web service will not be operational.

Finally an XP130 only accepts one open connection, so it is only possible to have one project in online mode accessing the same XP130.

4.2 Importing a project from a previous version

The save function in Contool is tied to the Contool release number. Consequently, you cannot load a project file from a previous version of Contool. If you need to upgrade a project to a newer version of Contool use the “Export Project to files…” and “Import Project from files…”

4.2.1 Exporting files



To export a project, choose “Files”, “Export Project to files”. This will open a file dialog, where you can point to the folder where your export files should go. It is very important that the folder is empty before exporting to it.

You can also create a new folder in the file dialog.

After the export, the folder is populated with a .con file for each module in the system, a floor plan table (.ftp) and the graphic files for each floor plan.

If you want to exchange projects with others, you can zip the entire folder.

4.2.2 Importing files

To import the project in another version of Contool, the first step is to create a new empty project **in offline mode**.

Start the project and choose “Files”, “Import Project from files” as the first action in the project, browse to your export folder and press “Open”. After a while you should get the “Project import successful” dialog. Note that importing big projects may take a couple of minutes to complete. Now you can save your project as a normal Contool project.

To go online with the system, choose “Files”, “Disconnect”, uncheck the “Offline mode” checkbox in the project view, and start the project again.

4.3 Downloading data from modules

If you lose a project file it is still possible to recreate a project from data in the modules/sensors by downloading data from the modules.

The new units from Concept 2000xp contain enough data to automatically restore a project, while the old units from Concept 2000 only contain the most critical data. A wizard is provided when downloading data from the old modules in order to guide the user to fill in the missing pieces.

The process is described in detail in 12.3.

4.4 Changing licence

When starting Contool for the first time all functionality will be present. But it is possible to restrict this functionality to the suit the needs of a typical “end user”. This is done in the Settings menu by clicking the “Change licence…” menu item.

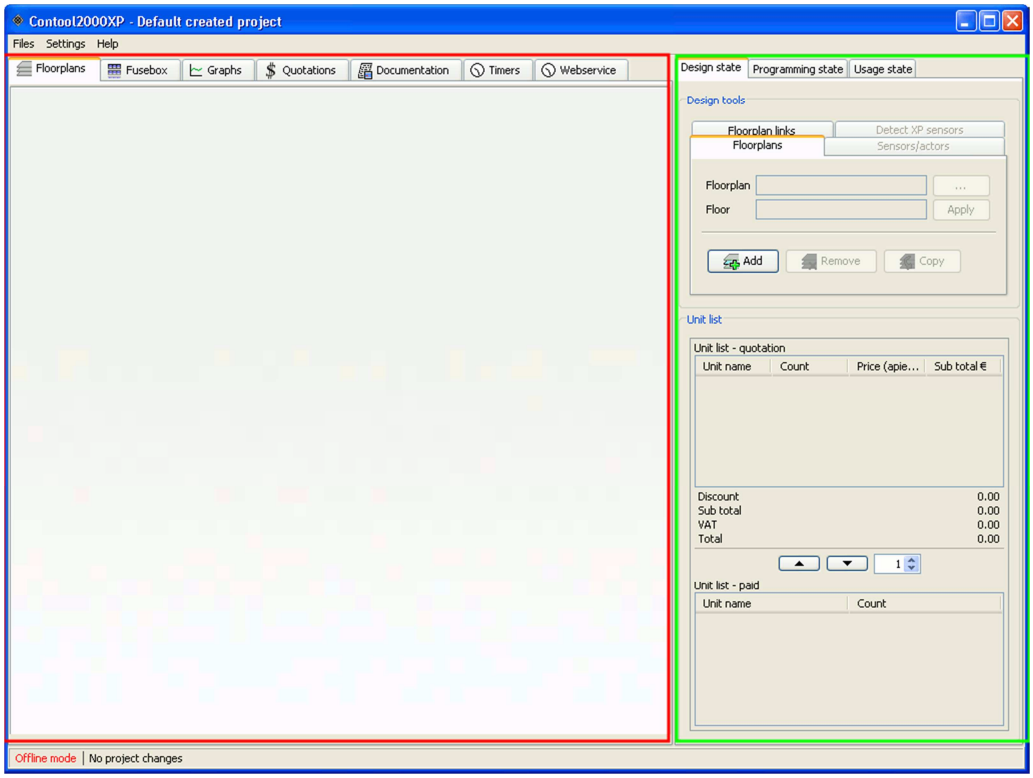
Doing so will display a dialog requesting a global password needed to switch to the limited end user licence. In order to switch back to the full licence, use the same menu item – and the same global password. This password is available on request.

Notice that the license settings affects the installation of Contool and not the project. In other words the complete Contool installation will have its licence changed but it will still be possible to move a project to another (full) installation and thus have full functionality in that (and any other) project.

5 Overall organization of the user interface

When the project is loaded the below user interface is shown. The interface has the same basic look and feel throughout the entire application:

- At the top a menu is located
  - **Files** gives access to functionality like save, export, import and close
  - **Settings** will be described in detail where they apply
  - **Help** contains a link to documentation etc.
- At the left (marked in red) a series of tabs are located which contains the main panel of Contool 2000xp
  - **Floor plans** holds blueprints and placed units
  - **Fuse box** holds fuse boxes and upload/download functionality
  - **Graphs** display data from the modules. Beta version
  - **Quotations** contains prices, unit lists and a simple invoice system
  - **Documentation** automatically created from data in floor plans and fuse box.
  - **Timers** provides functionality to trigger actions based on setup rules
  - **Web service** gives access to setup web-access to Contool2000xp
- At the right (marked in green) an action panel associated with the selected tab from the right side is located. Not all tabs have an action panel.



6 Detection of modules and XP sensors

There are three (identical) ways that Contool 2000xp can detect modules and XP sensors:

1. By simply starting the application in online mode (by not checking the “offline mode” checkbox at the start up screen)
2. By navigating to the fuse box tab and selecting “Detect XP” in the panel to the left
3. By navigating to the floor plans tab and selecting “Detect XP” in the panel to the left

If starting the application in online mode, all modules and sensors will be detected during start up, but it is also possible to detect newly added units after the project is loaded.

6.1 Placing detected modules

All detected modules will automatically be added to the fuse box at the first vacant slot from the top left corner. Since the modules will respond in a random order during detection, they must manually be replaced afterwards. See 12.1 for further detail.

6.2 Placing detected XP sensors

Unlike the modules, the detected XP sensors are not automatically placed. Instead they are listed in floor plan in design state in the “Detect XP sensors” tab. See 7.2.4 for further detail.

7 Floor plan: Design state

The floor plan tab is the most comprehensive part of Contool 2000xp. The action panel consists of three inline tabs.

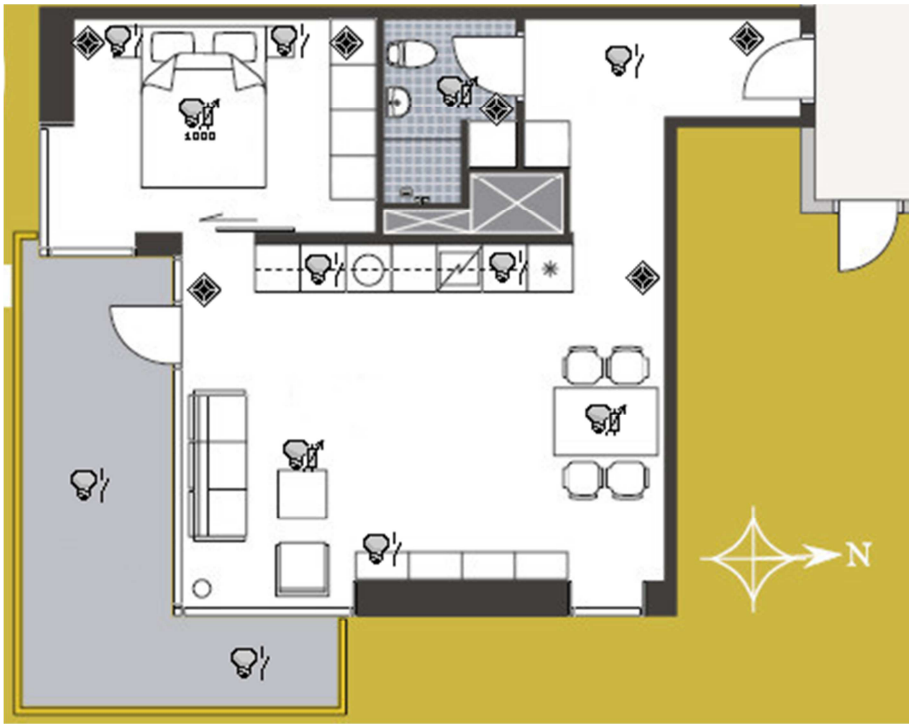
- Design state
- Programming state
- Usage state

Together they form a workflow for setting up an installation. The first part of this workflow is the design state used to add all needed units and connect these. Consequently, the target audience is technicians.

7.1 The main panel

The main panel to the left displays (when fully populated) a customizable background (like a blueprint image) with Conson units placed on top and how they are connected.

7.1.1 Drag and drop



Later on it will be described in detail how to add units to the main panel. For now let us assume that units are present at the main panel. In design state these can be dragged anywhere on the background making it possible to create an intuitive model of a real life installation.

7.1.2 Hovering

When holding the mouse over any type of unit, an info panel is displayed with detailed information regarding the unit. See 10.1.4 for further detail.

7.1.3 Left-clicking

Left-clicking has an associated action in the following scenarios:

- When placing units, when these “stick” to the mouse cursor. See 7.2.3.
- When adding or operating floor plan links. See 7.2.2.

7.1.4 Right-clicking

Right-clicking has associated action on all units by displaying their right-click menu. The content of the menu depends on the unit type:

- **Delete** is available for all unit types

- **Is WAP enabled…** is available for all sensors. This will toggle whether the sensor is part of the WAP access. By default no sensors are part of the WAP access. See 16.1.2 for further detail.
- **Blink** is available for all XP sensors. This will make the unit blink both on the floor plan as well as the real-life installation making it easy to identity the unit. The menu item is only enabled if online.
- **Start rotate** is available for all XP sensors. This will the unit enter “rotate mode” just like pressing the “start listening” in 7.2.4. The menu item is only enabled if online.
- **Stop rotate** is available for all XP sensors. This will make the unit exit rotate mode. The menu item is only available if online.

7.1.5 Drawing lines

Lines can be drawn, coloured and deleted anywhere on the floor plan by doing the following:

- Hold down the “W” key on the keyboard to start drawing a straight line from the original mouse coordinates. Release the “W” to end the line.
- Press the “T” key to switch the colour of the latest line. There are 7 different colours available.
- Press the “D” key to delete the latest line, or the “C” key to clear all lines.

The scope of the “T”, “D” and “C” commands are the current floor plan. Consequently, pressing “C” will only clear the lines on the currently selected floor plan.

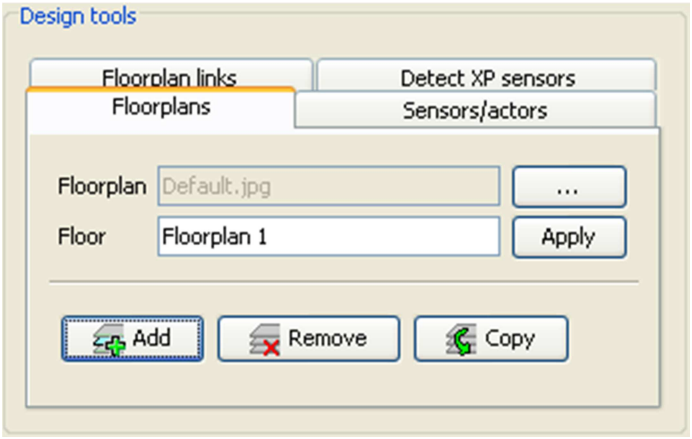
All of the above actions only apply **if** the floor plan is in focus. Do so by clicking anywhere on the floor plan.

7.2 The action panel

The top part of the action panel in design state consists of four tabs:

1. **Floor plans** used to add, remove, copy, rename and replace blueprint images
2. **Floor plan links** used to create links between floor plans
3. **Sensors/actors** used to add sensors and actors to the floor plans
4. **Detect XP sensors** used to add detected XP sensor to the floor plans

The bottom part of the action panel in design state is occupied by the “Unit list” in the first three of the four tabs listed above. The unit list simply displays all placed units (sensors, actors, modules etc.) in the project. By using the up and down arrows in the middle of the list is a possible to move units out of the quotation.

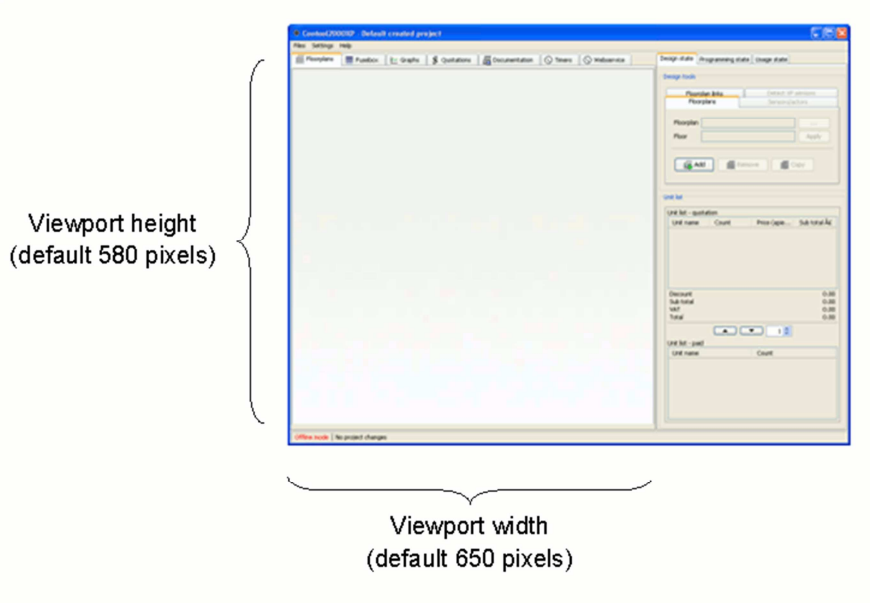


The remaining part of this section regarding the design state will focus on the functionality on the four tabs listed above.

7.2.1 Floor plans

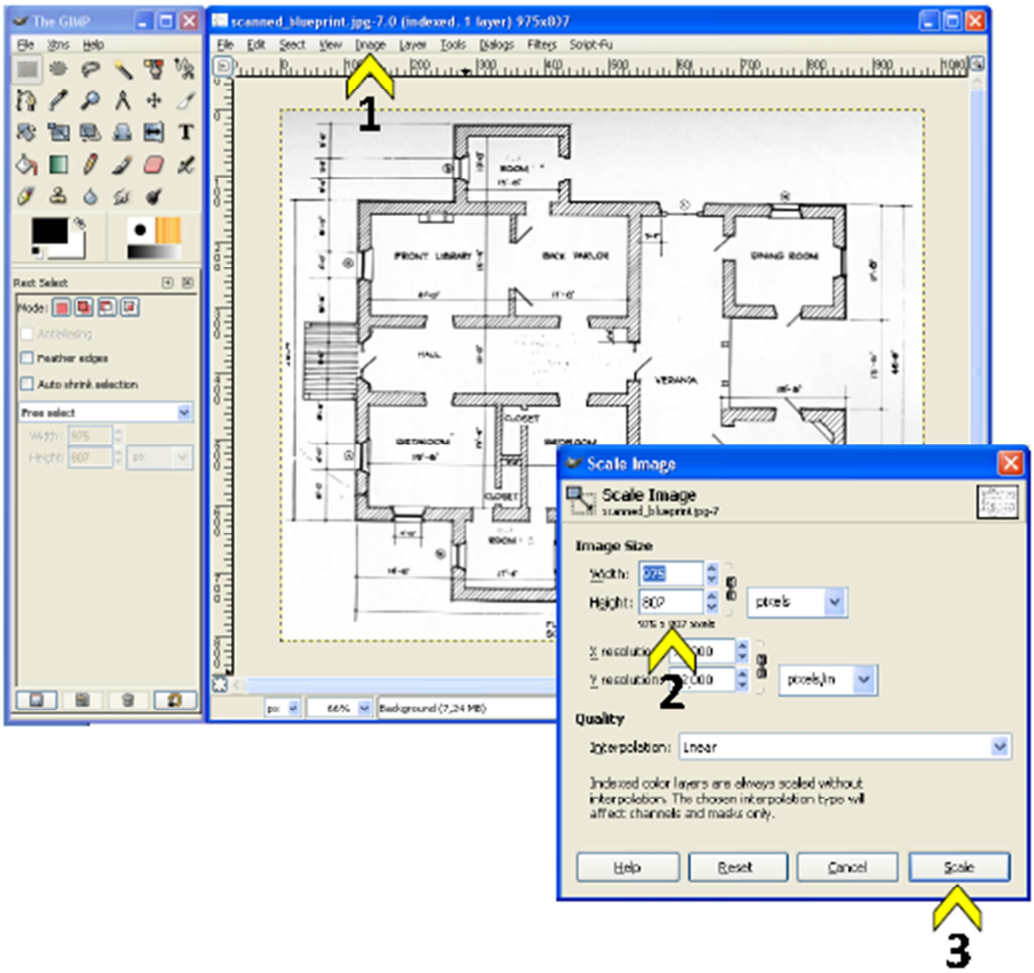
Most of the controls on this tab speak for themselves but these controls used to select a new floor plan image are worth commenting further:

In Contool 2000xp it is possible to use professional blueprints, your own customized background image or even room photos for each of the project floor plans.



For demo purposes Contool 2000xp is shipped with several blueprints as well as a photo of a B&O equipped room. These images will be used throughout the user manual, but obviously each real life project should always use real life blueprints/photos supplied by the end user.

Preferably, the image should be the same size as the floor plan view port area. Since it is possible to resize Contool 2000xp to fit different screen solutions, a fixed size cannot be set. However, if you use the standard window size of Contool 2000xp, you can import images with a 650 x 580 pixels resolution. Importing larger images will place scrollbars in the viewport, allowing you to scroll horizontally/vertically across the entire image.

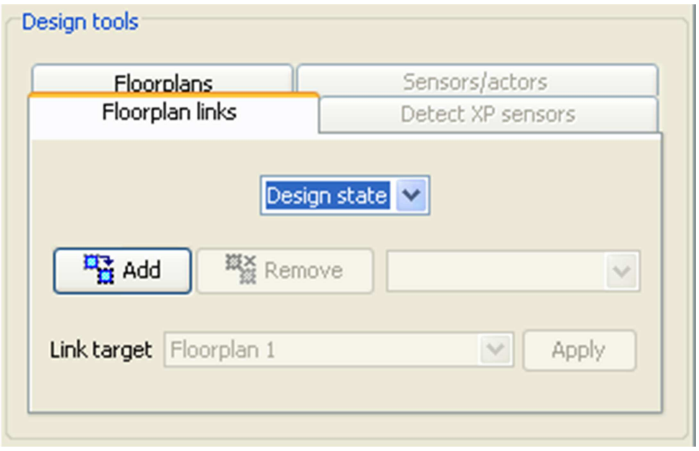


If you wish to resize a larger image to fit the floor plan viewport, use an image editing application. Several applications can be downloaded free of cost from the Internet, e.g. GIMP[3].

After downloading and installing GIMP all you need to do is to open the image you wish to resize. With the image file opened, select the menu “Image”, “Scale Image”. In the dialog that appears you simply enter the width and height of the floor plan viewport and press the “Scale” button. Finally save the image and you are ready to import it into Contool 2000xp as your floor plan background.

Notice that a new floor plan image should not exceed 200kb. Otherwise it might have a severe performance penalty on Contool 2000xp.

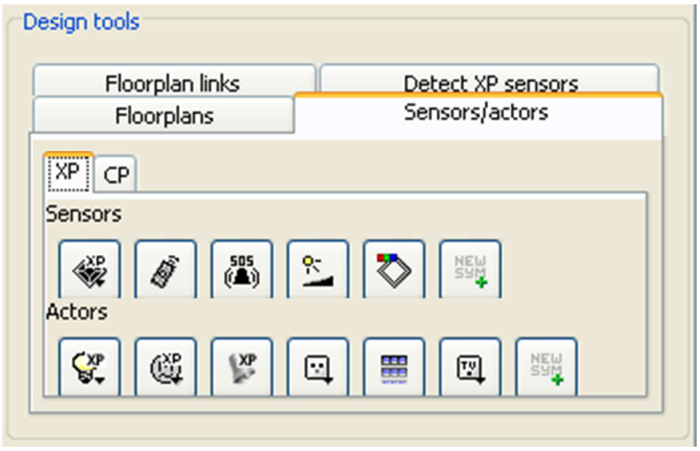
7.2.2 Floor plan links



The floor plan links offers the ability to draw polygon links which work as a shortcut between floor plans. This is a useful feature when having a project with multiple floor plans like a house where a stair in the ground floor could be turned into a link which leads to the upper floor.

When created a link, set it in “Design state”, press the “add” button and click on the floor plan where you want the polygon to start. Each click will create a new edge to the polygon and dragging the highlighted edges will resize the polygon. The “link target” holds the floor plan which the polygon will link to. Finish off by setting the state to “test state”.

7.2.3 Sensors/actors



All units are located on the “Sensors/actors” tab on drop down menus. **Sensors** are units like push buttons, remotes, PIR detectors etc. which all trigger actions on **actors** which are outlets, lamps, motors fan, etc.

By clicking a unit, this unit “sticks” to the mouse cursor which is moved inside the main panel (the floor plan to the left). After placing a unit by left-clicking on the floor plan, a new unit of the same type “sticks” to the mouse cursor until ESC is pressed or the mouse cursor is moved outside the floor plan area.

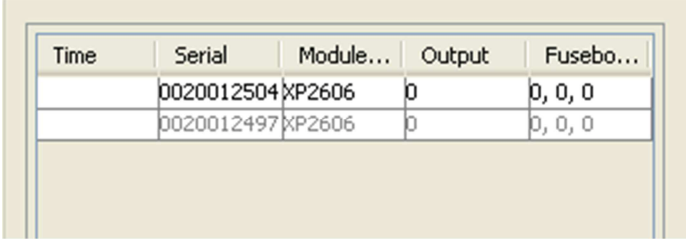
Most actors require a connection to a module and some sensors require a connection to an “eye”. Whether this connection is handled automatically by Contool 2000xp or handled manually by the user is set in the “Settings” menu by the “Automatic connection” option.

[3] http://www.gimp.org/downloads

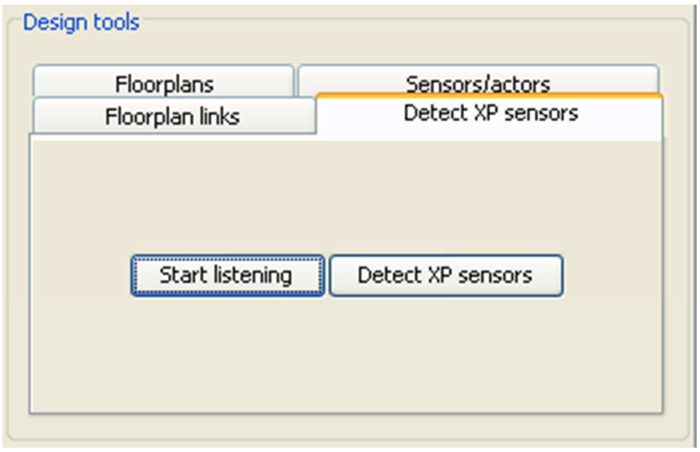
See the sections 8 and 11 for an in-depth description of how to program units.

7.2.4 Detect XP sensors

The “detect XP sensors” tab replaces the unit list with a list of detected XP sensors. If the list does not contain the expected count of units, press the “Detect XP sensors” button to make Contool 2000xp try to re-detect sensors.



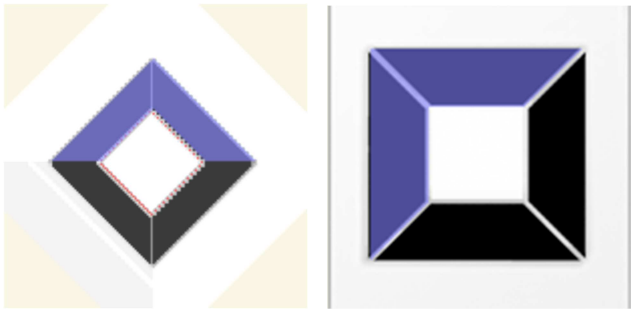
The list contains information about serial number and module type in a random order, but in order to place the sensors correctly on the floor plan it is important to be able to have them displayed in a sorted order. They can be sorted by pressing the “start listening” and walk around the installation in a fixed order, pressing the push buttons on the way. Each unit will, when pressed, send out a timestamp which the application will use to order the units.



In the same process, it is handled whether the units are rotated correctly. Both the timestamp and the rotation are done by pressing push panel no 2 and 3 for 5 seconds as illustrated below[4]. The sensor will start blinking once the process is complete.

After having pressed all XP sensors throughout the installation, the list in Contool 2000xp will be sorted by the received timestamp. The final step is to drag the sensor from the list to the floor plan. In order to avoid accidentally dragging a wrong sensor, it is only possible to drag the sensor at the top of the list.

As a best practice you should have Contool 2000xp with you on a laptop with a wireless connection, as you walk through the installation. This will enable you to verify that each pressed button indeed is being correctly time stamped and thus you will not end up with one or more not-time stamped buttons at the end of your tour around the installation. If a wireless connection is not available, it is advisable to split the tour of the installation into minor bits like one room at a time and place the time stamped buttons after each part of the tour.



[4] XP25xx is shown to the left, and XP26xx is shown to the right

If the sensor is dragged on top of another sensor, a dialog will be displayed enabling the transfer of the serial number. Consequently, it is possible to setup a complete project off site, go online at the site to transfer the serial numbers and finally upload the programming to the sensors and modules.

8 Floor plan: Programming state

The programming state enables programming the units placed in design state. Consequently, the target audience is technicians.

8.1 The main panel

The main panel to the left displays the units placed in design state and the programming as the programming of the units are created during this state.

8.1.1 Hovering

The exact same information is displayed in programming state as in design state when hovering. See 7.1.2.

8.1.2 Left-clicking

Left-clicking has an associated action in the following scenarios:

1. When clicking a sensor (except remotes needing an eye)[5]. This will display a zoom of the sensor at the action panel.
2. When clicking a remote needing an eye. This will prompt the user to select a compatible eye and making the selection easy by hiding all non-compatible units.
3. When clicking an empty coordinate on the floor plan. This will exit the state entered at any of the two items above.

8.1.3 Right-clicking

Similar to the design state, right-clicking any unit will display their right-click menu, and the content of the menu depends on the unit type:

- **Program direct…** is available for all actors and all XP sensors
- **Update firmware…** is available for all XP actors and all XP sensors. This will open a dialog with functionality to update the firmware by selecting which firmware version to update to. The newest firmware files are always shipped with Contool 2000xp.
- **View action table…** is available for all XP actors and XP sensors and opens a dialog with the serial number, link number and content of the action table.
- **Actor console…** is available for all XP actors. The functionality is described in details in 8.1.4.
- **Actor programming…** is available for all XP actors. The functionality is described in details in 8.1.4.
- **Setup alert…** is available for all XP actors. The functionality is described in details in 8.1.6.
- **Configure webcam…** is available for webcams. The functionality is described in details in 8.1.7.
- **Configure…** is available for eyes. The functionality is described in details in 8.1.8.
- **Connect eye…** is available for remotes needing eyes. The functionality is described in details in 8.1.9.
- **Upload single module…** is available for actors. The functionality is described in details in 8.1.10.

[5] Remotes are by definition also sensors.

8.1.4 Right-click menu: Actor console…

Selecting the “Actor console…” from the right-click menu opens a dialog with three features:

1. **Enable auto reporting** (only available if online). This is used to enable actor event on “make” and “break” and is by default turned off to reduce traffic on the bus. See 8.1.5 for further details.
2. **Enable toggle**. This is used to enable/disable the possibly to toggle the actor directly from usage state (or the dialog itself). See 9.1.1 for further details.
3. **Enable light level** (only available if the actor is connected to a XP31 or XP33). This is used to enable/disable the possibly to set the light level directly from the dialog itself.

8.1.5 Right-click menu: Actor programming…

Selecting the “Actor programming…” from the right-click menu of an XP actor will set the floor plan in “Actor programming state” which is shown by marking the actor (invoker) with an orange circle and prompting the user to select a second actor (invokee).

The process is similar to selecting a push panel on a sensor (invoker) and subsequently selecting an actor (invokee). This is due to the fact that the new Concept 2000xp enables the actors to fire events on “make” and “break” and this event can be used to trigger events on other actors. Consequently, when selecting the second actor (invokee) the regular programming dialog will be shown. To exit the “Actor programming state”, press the ESC key on the keyboard.

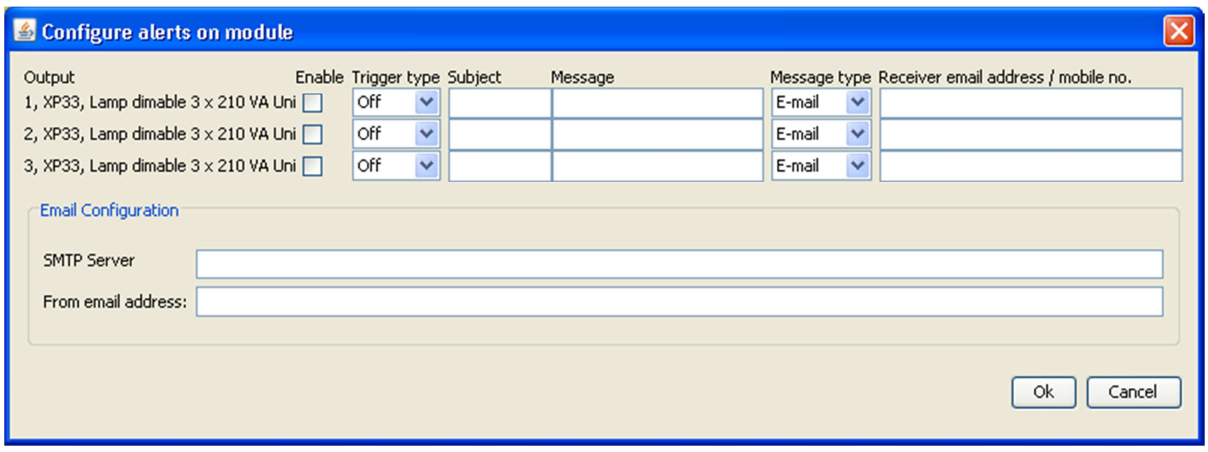
For at complete example on how to utilize actor programming see 11.1

8.1.6 Right-click menu: Setup alert…

The menu item “Setup alert…” opens the dialog below. Through the dialog it is possible to have Contool 2000xp sent out an e-mail when a certain actor is turned on/off e.g. if the outlet at the freezer is turned off.

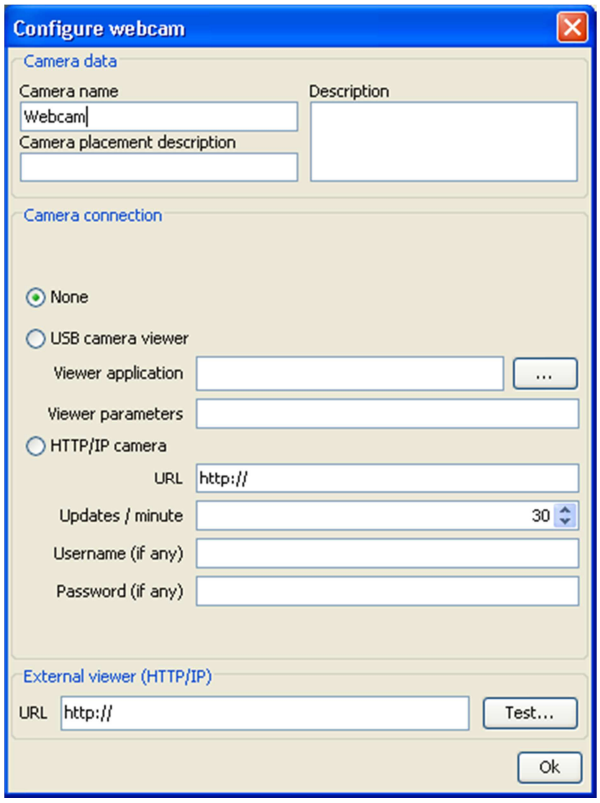
Be careful to test whether your SMTP server filled in at the bottom of the dialog allows you to sent out e-mails without SMTP Authentication[6].

Finally beware that the message type SMS is **not** implemented in this version.



[6] Verifying this is beyond the scope of this user manual.

8.1.7 Right-click menu: Configure webcam…



The menu item “Configure webcam” opens the regular webcam viewer in Contool 2000xp. Pressing the “Setup” button will open another dialog used configure the stream to display in the webcam viewer. It is possible to connect to either a USB camera or an HTTP/IP camera. The latter is very easy since it is typically merely a question of filling in the correct URL and this URL can be tested by using the external viewer found at the bottom of the dialog.

The former (USB) can be a little more tricky. It needs a viewer application which is usually shipped together with the web cam. For easy of use a simple viewer is shipped together with Contool 2000xp at [installation path]/USBWebCamViewer/WebCamViewer.exe.

8.1.8 Right-click menu: Configure…

The “Configure…” menu item is only found at eyes and it opens a dialog for setting the channel (for XP eyes) or for adding and connecting modules with channel and link (for CP eyes).

8.1.9 Right-click menu: Connect eye…

The “Connect eye…” menu item is used to setup default connections for ease of use in the usage state.

If no eye is connected to an eye-needing remote control, selecting this remote control in usage state will prompt the user to select which eye to go through when operating the remote. This step can be eliminated by setting up a default connection.

To connect to an eye, select the “Connect eye” menu item on the remote and left-click the preferred eye. To disconnect repeat the same steps as when connecting. To exit the “connect eye state” left-click on an empty coordinate at the floor plan.

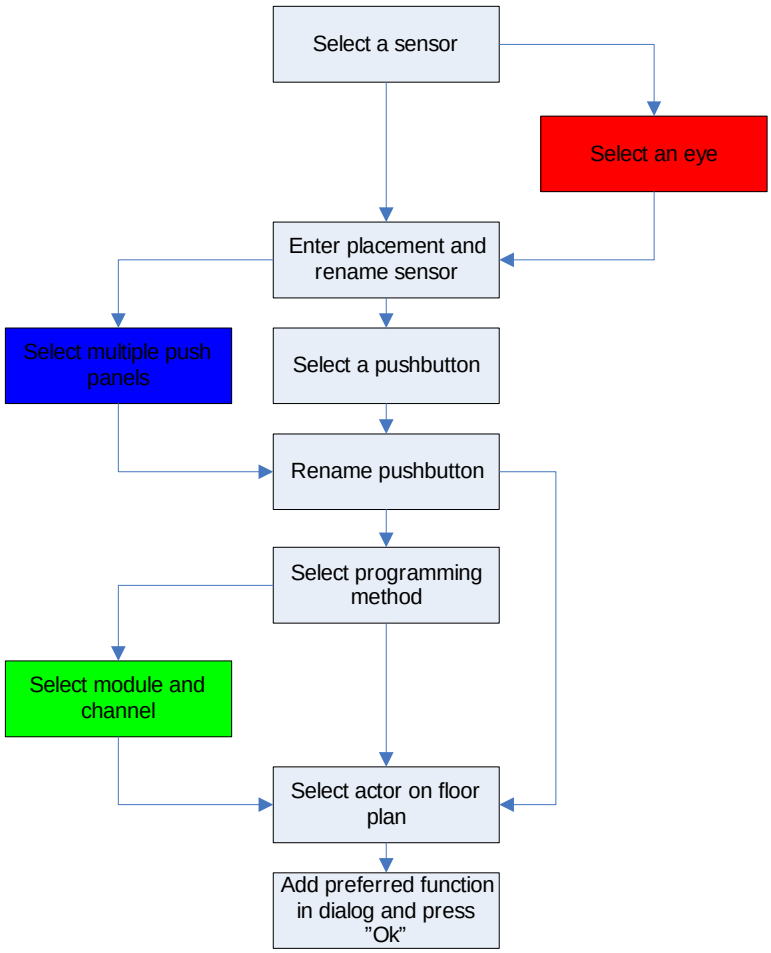
8.1.10 Right-click menu: Upload single module…

The “Upload single module…” is only found at actors and acts as a shortcut to upload data to the module which the current actor is connected to. This will open the same upload dialog used when uploading to multiple units from the Fusebox. Only difference is the fact that there will always only be uploaded one single module when triggered from “Upload single module…” menu item.

8.2 The action panel

In order to start working with the action panel, the first step is to select a sensor (by left-clicking on it) on the main panel to the left. Doing so makes displays a zoom of the selected sensor.

How to process from here depends mainly on the type of the selected sensor and settings in the Settings menu. The various paths on how to complete the programming are shown in the below work flow chart where all paths start by selecting a sensor.


Select a sensor
Select an eye
Enter placement and rename sensor
Select multiple push panels
Select a pushbutton
Rename pushbutton
Select programming method
Select module and channel
Select actor on floor plan
Add preferred function in dialog and press "Ok"

8.2.1 General workflow

This workflow applies to all XP switches, CP switches *in automatic connection mode*, CP70C remotes[7] and the virtual 70D sensor.

The general workflow is displayed as the series of light blue squares and represents the shortest path. Since every single step (except the "Select a pushbutton") is part of any other path, each step will be explained in details below:

1. **Select a sensor** from the main panel to the left.
2. **Enter placement and rename sensor**. Notice that the sensor is already named, so renaming it is not mandatory.
3. **Select a pushbutton** on the zoomed sensor.

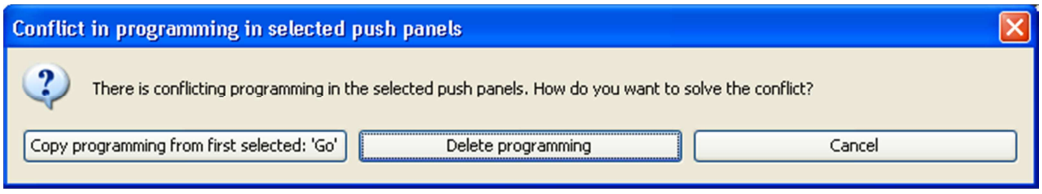
[7] CP70C01, CP70C05, CP70C08 and CP70C16.

4. **Rename pushbutton**. Notice that the pushbuttons are already named, so renaming them is not mandatory.
5. **Select programming method** is strictly speaking not part of the shortest path but it is the most common path since most sensors offers more than one programming methods. But since a few sensors only have one programming method, the step is left out in these cases.
6. **Select actor on the floor plan** by left-clicking on an actor at the main panel which opens up a dialog.
7. **Add the preferred function in dialog and press "Ok" button**.

8.2.2 Alternative workflow: Programming multiple push panels at the same time

It is possible to select multiple push panels in any workflow by holding down the Ctrl key at the keyboard and select several push panels. Release the Ctrl key after having selected the preferred push panels and before proceeding to the step "Rename pushbutton".

If pushbuttons with conflicting programming have been selected, the following dialog will appear with the following options (when releasing the Ctrl key):


Conflict in programming in selected push panels
There is conflicting programming in the selected push panels. How do you want to solve the conflict?
Copy programming from first selected: 'Go'
Delete programming
Cancel

- **Copy programming from first selected** will delete any programming on all other push panels than the first selected and copy the programming from the first selected.
- **Delete programming** will delete the programming on all the selected push panels.
- **Cancel** will not have any impact besides clearing the selection.

Proceed with step "Rename pushbutton", unless having selected "Delete programming".

8.2.3 Alternative workflow: Programming remotes through eyes

This workflow applies for all remotes controls needing eyes to operate[8].

These remote controls are easy to spot, since the action panel will display a message to select an eye after having selected an eye-needing remote control. Furthermore, all non-compatible units will be hidden, making it easy to select a compatible eye[9] at the main panel. After having selected a compatible eye proceed with the general workflow at "Enter placement and rename sensor".

8.2.4 Alternative workflow: Programming by selecting module and channel

CP switches *in manual connection mode* or just CP switches through XP28 units need additional steps to complete their workflow. After having selected a programming mode controls to select a CP/XP20 or an XP28 will become available. If selecting an XP28, this can be done in the dropdown list or by selecting the XP28 directly on the main panel.

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[8] Either a BeO4 or a CP79

[9] If the remote is a BeO4 select one of the following eyes: XP 2506B, XP 2606B, CP 2502B, CP 2507B, CP 2509, CP 2602B, CP 2607B, CP2609
If the remote is a CP70 select one of the following eyes: XP 2506A, XP 2606A, CP 2502, CP 2507, CP 2602, CP 2607

Selecting the channel is last part of the step which is done by left-clicking the preferred radio button. Selecting the channel is not enabled if having selecting the programming mode “All on” or “All off” and a CP20/XP20 module due to the fact that this programming mode is set at fixed channels.

Finally notice that when selecting a channel which is already programmed through another connected sensor, the existing programming will be displayed. And changing the functionality will affect all sensors connected to that channel.

8.3 The sensors

Since the type of the sensor has such a great impact on how the work flow goes, let us have a closer look the sensors. The sensors can be categories based on differences in their functionality. The ultimate responsibility of all sensors[10] is to broadcast a telegram (when activated) which is a combination of their type, a link number (tied to the unit) and a channel number (tied to a push panel or similar). This is important due to the fact that there are constraints on these combinations:

- In the Concept 2000 (CP series) a maximum of 4 different link numbers per type are available.
- In the Concept 2000xp (XP series) a maximum of 100 different link numbers per type are available. One of these link numbers are reserved which leaves a maximum of 99 units of the same type.

For guidelines on how to program these sensors see section 11 for further details.

8.3.1 XP sensor

The sensors named XP 2506 and XP 2606 are XP sensors. Both of them have variants with a B&O eye[11] (named with a post fixed B) or an IR eye[12] (named with a post fixed A).

An XP sensor holds both module type, link number and channels numbers in itself as well as push panels and can be programmed without being dependant of any other units. This is also the case with the A and B variants, which have built-in “eyes”.

8.3.2 XP28

The sensors named XP 28 are XP 28 type sensors – and like the XP sensors they come in A and B variants.

Even though the XP28 sensors are very closely related to the XP sensors, there is one major difference: XP28 sensors have no push panels. Consequently, push panels from “non-programmable” sensors must be wired to an XP 28 sensor in order to operate it.

8.3.3 B&O

In Concept 2000 B&O integration is possible through a “B&O eye” in a sensor[13] and a CP 70B module. In Concept 2000xp this is still possible (all though the module to use is called XP 70B). Both of these modules are programmed using Conbeam/XP78.

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[10] If the sensor is a CP sensor, the responsibility to broadcast the telegram is actually the module, which the sensor is connected to.
[11] XP 2506B, XP 2606B
[12] XP 2506A, XP 2606A

The preferred way is to simply use a B variant of an XP sensor or XP 28 sensor which holds both the needed eye as well as the module-functionality.

8.3.4 UHF

In Concept 2000 UHF integration is possible through the CP 70C module. In Concept 2000xp UHF integration is very similar through the XP 70C module. Both of these modules are programmed using Conbeam/XP78.

8.3.5 IR

The IR integration is (from a sensor/module point of view) very similar to the B&O integration:

In Concept 2000 IR integration is possible through an “IR-eye” in a sensor[14] and a CP 70A module. In Concept 2000xp this is still possible (all though the module to use is called XP 70C). Both of these modules are programmed using Conbeam/XP78.

The preferred way is to simply use the A variant of an XP sensor or XP 28 sensor which holds both the needed eye as well as the module functionality.

8.3.6 Timer

There is no actual real life sensor available for the timer type, due to the fact that it only consists of a module. But since everything programmable in Contool 2000xp must be accessed through a unit on the floor plan, a virtual sensor for 70D is added.

Like B&O, UHF and IR both a CP 70D and a XP 70D modules exist and both are programmed using Conbeam/XP78.

8.3.7 CP programming (XP20)

The Concept 2000 general way to program most functionality (by placing a sensor and connecting this sensor to a CP20 module) is still supported in Contool 2000xp. The connection from the sensor to the module can now also be done with an XP 20 module.

[13] CP 2502B, CP 2507B, CP 2509, CP 2602B, CP 2607B, CP2609
[14] CP 2502, CP 2507, CP 2602, CP 2607

9 Floor plan: Usage state

The usage state is the third and final state where all units have been placed, connected and programmed. The state merely contains functionality to operate the units. Consequently, its target audience is the end user.

9.1 The main panel

The main panel looks identical to the previous two states, but the functionality differs.

9.1.1 Left-clicking

It is possible to left-click both sensors and actors:

- Left-clicking a sensor brings up a zoom of the sensor at the action panel. See 9.2.2.
- Left-clicking an actor toggles the actor – if a toggle is available through a programmed function and if toggle is enabled (see 8.1.4).

9.1.2 Double-clicking

Double-clicking a webcam will open a dialog displaying the webcam viewer.

9.1.3 Actor feedback

If the actor is set to send feedback, operating a function in any way[15] will change the icon of the actor to illustrate its state (on or off).

9.2 The action panel

The action panel in usage state consists of the parts:

1. **Miscellaneous** which enables the end user to open links to websites and locally installed programs – and edit these links as well
2. **Sensor** which enables the end user to trigger programming in Contool 2000xp as if pressing the physical push panel.

9.2.1 Miscellaneous

Contool 2000xp is shipping with language specific template functionality for the miscellaneous section in usage state. When creating a new project, the template for chosen language is copied to the project.

Graphically, the sections hold 3 x 6 buttons where each of these buttons can control one or more actions. The default layout is shown below.

[15] There are three ways to operate an actor:
1. In usage state by left-clicking the actor
2. In usage state by left-clicking a push panel on the zoomed sensor in the action panel
3. In real life by pushing a push panel on a physical sensor.

When left-clicking one of the 18 controls, one of the following will happen:

- If there is no action defined, merely the message “No functionality has been specified for this button” will be displayed.
- If there is only one action defined, this action will be initiated. In revision 2670 the actions can be either opening a webpage or a locally installed programme from a URL.
- If there is more than one action defined, a popup list will be displayed with all the actions. Double click the wanted action.

When right-clicking a control you will get the following options:

- “Change icon” used to change the icon by picking another image located on the computer. This action is always available.
- “Delete URL” used to delete the action on the control. This is only available if there is only one action defined on the control.

When right-clicking an item in the popup list, you will get the following options:

- “Delete item” used to delete the selected action
- “Edit name” used to rename the selected action. This is buggy in revision 2670.

It is possible to drag and drop a URL for instance from the address field of the browser window to one of the 18 controls in the usage state in Contool. By doing so, the URL will be saved as a new action and added to the bottom of the list. By dragging the complete path of a locally installed programme or document (like C:\Program Files\Microsoft Office\Office12\Outlook.exe) it is also possible to add this as an action.

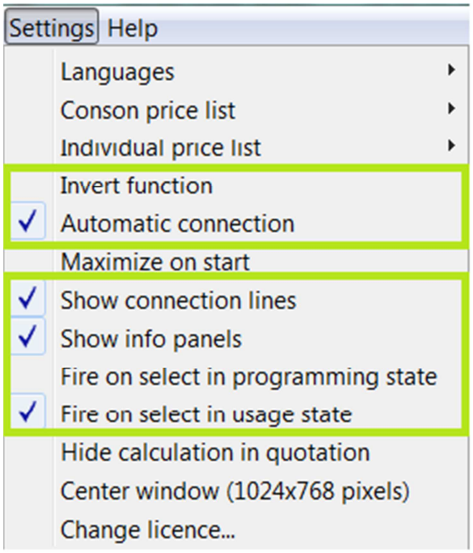
In the popup list the items/actions can be sorted by dragging them to a new position.

9.2.2 Sensor

Clicking a sensor on the floor plan to the left brings up a zoom of the current sensor. Pressing the push panels of this sensor will make Contool 2000xp trigger functions on the live modules – as if you were pressing the same push panel in real life!

10 Floor plan: The settings menu

The Settings menu found at the top menu in Contool 2000xp contains a series of application wide settings. Items enclosed in green are solely related to the floor plan, and they are shown with their default settings.



10.1.1 Invert function

When selected, the “Invert function” will become visible at the programming dialog offering the possibility to invert a programmed function. See 11.1.3 for further detail.

10.1.2 Automatic connection

When selected, the “Automatic connection” makes it faster to place and program units since the user is no longer prompted to make some of the detailed decisions.

In design state, the user is not prompted to choose at which output at which module to connect an actor if placing an actor. Contool 2000xp will automatically choose the first vacant output at the first suitable module, and if no module is present a new module will automatically be added. The same kind of logic applies when placing a unit with a B&O eye or an IR eye: if “Automatic connection” is selected, Contool 2000xp will not prompt you to select the channel on which the eye should look for data.

In programming state, the user is not prompted to choose at which input at which CP20/XP20 module to connect a push panel to if programming a CP sensor.

In order to have full control over these decisions deselect the “Automatic connection”.

10.1.3 Show connection lines

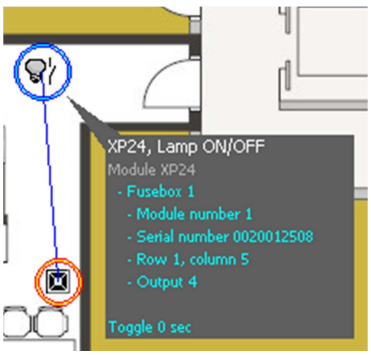
When a push panel is programmed to affect one or more actors, a connection line will be shown between the sensor and the actor/actors and all the units will be circled.

If a programmed sensor is selected, all the units affected by the sensor will have their connection lines displayed. When hovering or selecting a push panel, only the units affected by that push panel will have their connection line displayed.

Connection lines are shown in programming and usage state if the menu item “Show connection lines” is selected.

10.1.4 Show info panels

When selected, the “Show info panels” will display a panel with text on a grey background. The information on the panel is always displayed when a unit is hovered on the floor plan image to the left. But the content of the info panel will vary depending on the following:



- Any unit will display its name in any state.

    - In design and programming state actors will furthermore display details regarding their connected module
    - In design and programming state sensors will display their placement text and XP sensors will furthermore display their serial and link number.
- If a push panel on the action panel to the right is selected, the info panel will besides the above listed information display details regarding the programmed functions from the selected push panel. This is the case in both programming and usage state.

10.1.5 Fire on select in programming state

By default when clicking a push panel in programming state, the push panel is selected. This setting can be used to change the default behaviour to fire the function instead (making it work like the default setting in usage state)

10.1.6 Fire on select in usage state

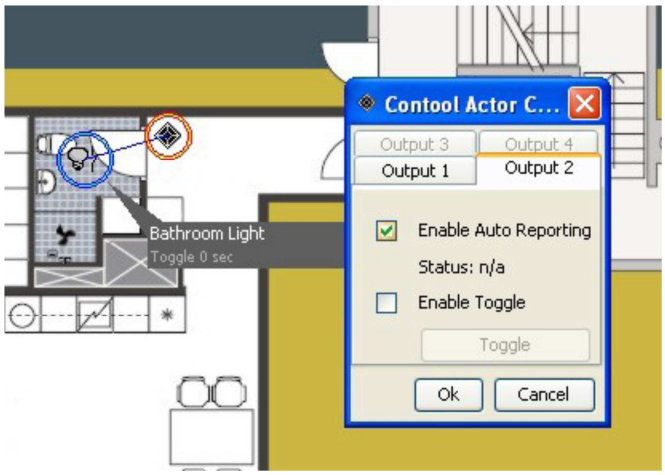
In usage state the default setting is opposite the setting in programming state: By default a function is fired by clicking a push panel, but it can be changed to selecting the push panel instead. This is useful for showing full details in info panels like described in 10.1.4

11 Programming examples for the XP series

11.1 Exhaust fan

This short guide describes how a bathroom exhaust fan can be programmed with Contool. A normal way to control a bathroom exhaust fan is to have it running on a timer, delaying start and stop with respect to the bathroom light. This is done in Contool using Auto report events, actor programming and invert function.

11.1.1 Auto Report Events



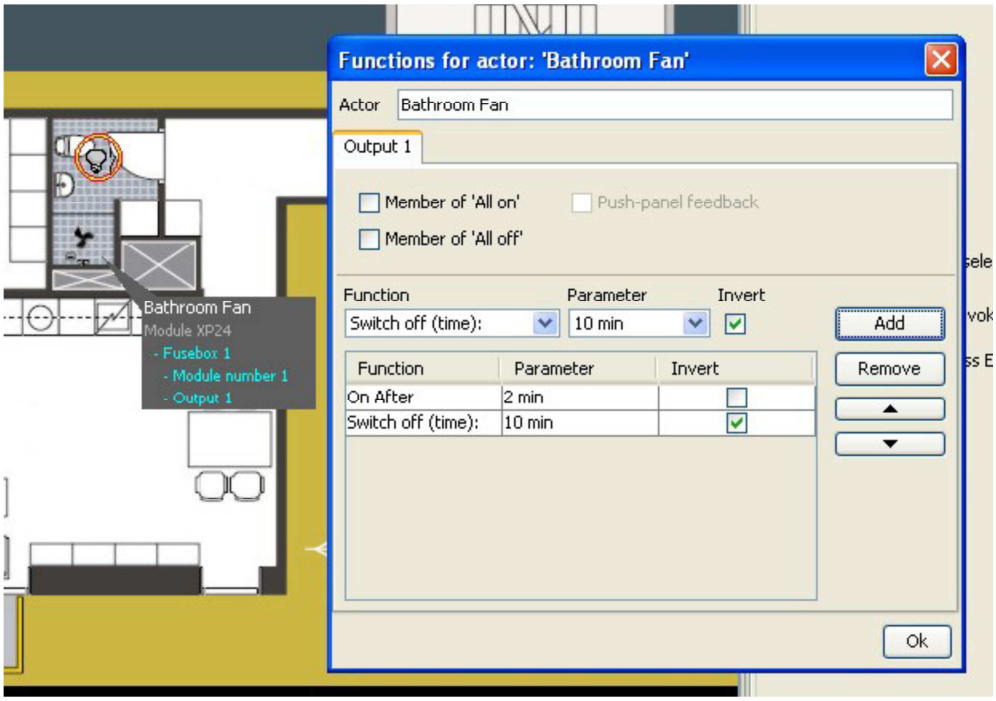
Each actor can send out an event when the status of one of its outputs changes.

This must be enabled in the Actor Console (Right-click lamp, choose “Actor Console”, and check the “Enable Auto Reporting” flag). You can only do this while online with the system.

11.1.2 Actor Programming

To use the auto report events from a lamp (actor) to invoke functions on your fan, right-click the lamp and choose “Actor Programming”.

Now choose the actor (Fan) that should be controlled with respect to the bathroom light. This will give you the usual programming dialog.



11.1.3 Invert function

You must have access to the invert function to program the fan, so make sure the ”Invert function” is checked in the ”Settings” menu.

Auto report events come in two flavours: A “make” event when the actor switches on, and a “break” event when the actor switches off.

The Invert checkbox lets you choose which event should invoke this particular function. If the Invert checkbox is checked, the “break” event is used to invoke the function, if unchecked, the “make” is used (this is the normal situation).

To turn on the fan, the ”On After” function is used with a time parameter specifying the delay from the bathroom light turns on, to the fan is turned on.

To turn off the fan, the “Off” function is used with a time parameter specifying how long time the fan should run after the bathroom light is turned off. This function must be triggered by the “break” event.

On the figure above you can see the entire programming of the fan. Press “Ok” as usual when done, and you will see a link between the bathroom light and the fan, just as you would between a sensor and a lamp.

11.1.4 A note on the Fan symbol and XP24/XP24P

When designing floor plans, the fan symbol uses an XP24 module. If you want to run the fan from an XP24P module, turn off “Automatic Connection” in the “Settings” menu. You will then be able to connect the fan to either an XP24 or an XP24P.

11.2 Curtain control

In Contool you have some actor symbols used for controlling curtains and blinds. In this section we will look at how they are used.

11.2.1 Curtain actors

In design state you find the motors for curtain control under the XP tab by pressing the motor button.

There are two standard AC motors, using two relays from either an XP24 or an XP24P (power registration). The relay pairs (1-2 and 3-4) will be mutual exclusive, with a dead time of 300ms. The dead time can be changed using the “Direct programming” dialogue, see illustration below in this section.

Furthermore there is one DC motor using four relays from an XP24, and finally a simple fan motor, using one relay from an XP24. If you need XP24P for fan control, disable automatic connection in the “Settings” menu.

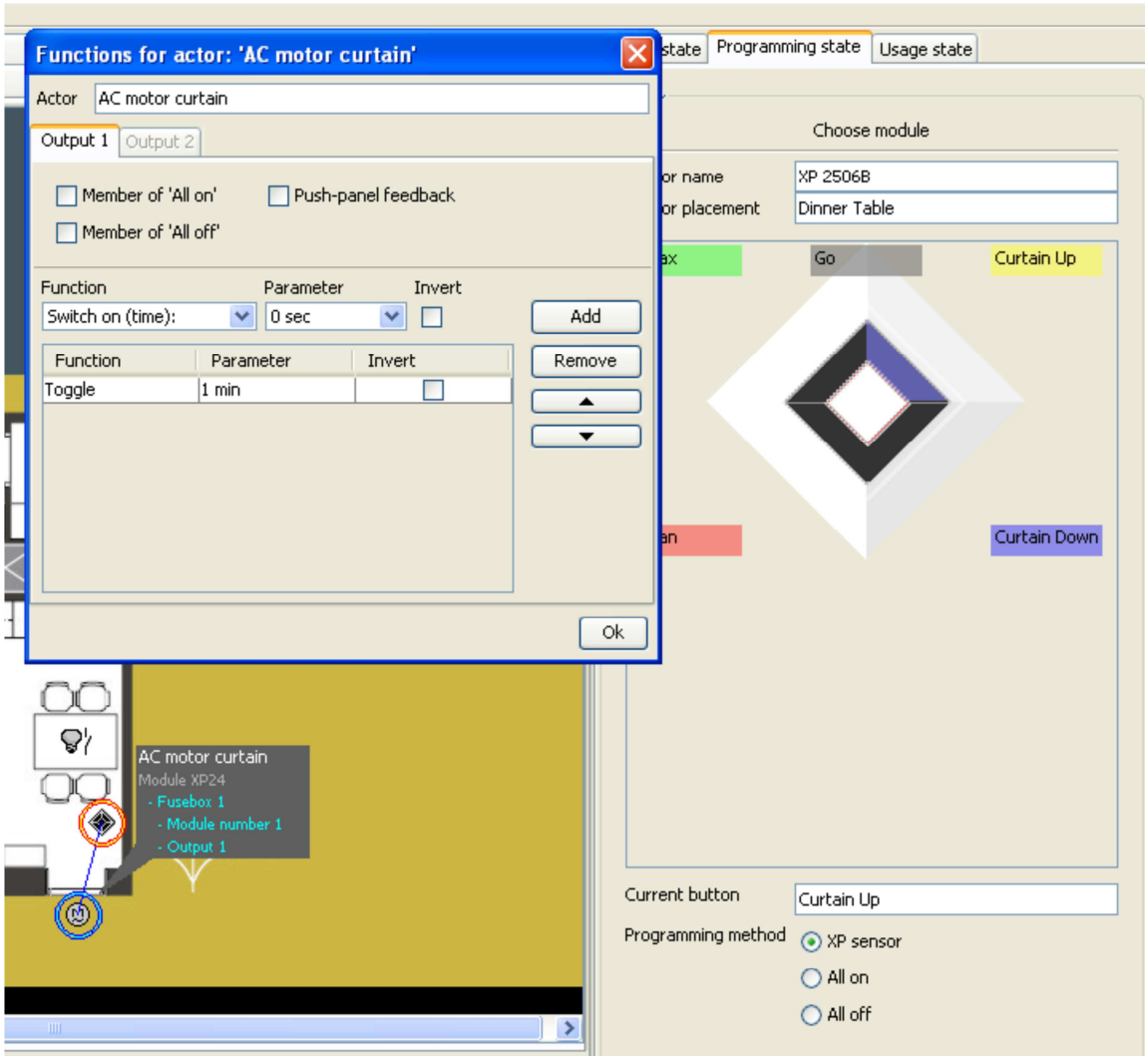
11.2.2 Programming Curtains

We will describe programming curtains using an example: We have a curtain and an up-button and a down-button. We want to be able to stop the curtains at any time. If we for instance press “Up” while the curtain is already moving in that direction, we want it to stop. So both the “Up” and “Down” button must do “up-stop-up” and “down-stop-down” when pressed multiple time.

We also want the relays to go off after one minute, to remove power supply from the motor when not needed.

Say the up direction is controlled by Relay 1 (Output 1) of the XP24, and the down direction by output 2.

To program the desired function, in programming state select a push panel from the floor plan, then select the button that should be used for ”Up”. Click the motor and add “Toggle 1 min”[16] on the “Output 1” tab. Then select the “Down” button on the sensor, and click the motor again. Now select the “Output 2” tab, and add another “Toggle 1 min” function. Below is shown how the programming looks in Contool.



11.2.3 All on/All off functions with curtains

In the programming dialogue, notice that curtain relays are not default members of the “All on” or “All off” group the way a normal lamp is. This is because the system cannot know what “All on” or “All off” should mean for a curtain – should it go up or down, using which relay?

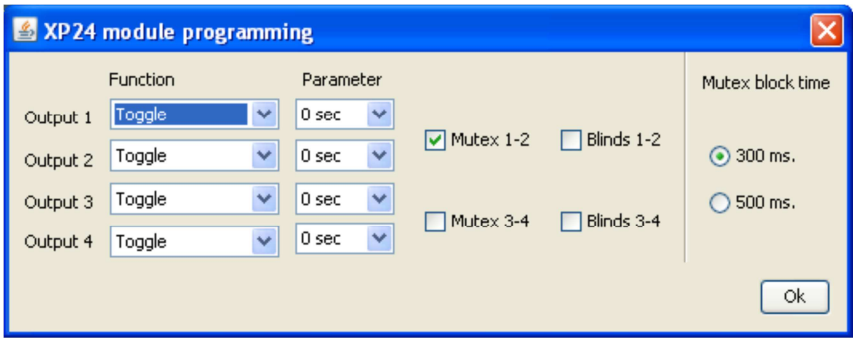
The All On/All Off functionally has to be added manually. In this example we want the curtains to go up on when “All off” is pressed.

[16] Giving the toggle function a time parameter will restrict its “on” time to the time parameter.

To do this, select one[17] of the “All off” buttons, click the curtain actor on the floor plan which will bring up the programming dialogue. Now select the output 1 tab (output 1 was the “up” relay remember), and add the function “On 1 min” to the tab. With this function, the relay 1 (Up relay) will go on for 1 minute each time an “All off” button is pressed.

11.2.4 Direct programming

If you right-click the motor actor symbol and select the “Program direct” menu item, you get the dialogue shown below.



With this dialogue you can setup which functions to use for the direct input of the XP24. Besides that, you can select mutual exclusion between the relays in pairs.

The Blinds checkboxes are described below.

11.2.5 Controlling blinds

Some curtains tilt the blinds when they are in the down most position. In this case, you can sometimes open the blinds by turning on the “up” direction of the motor in short pulses.

With XP24 this is done checking the Blinds box shown above. When the blinds function is selected, short pulses below 1 second will only switch the relay on for as long as the button is pressed. In other words, short presses below 1 second on the button will give you short pulses on the relay, whereas pressing the button for longer than 1 second will leave the relay on when you release the button.

11.3 B&O

This short guide describes how the Conson XP modules can be controlled from a Bang & Olufsen BEO4 remote control.

11.3.1 Programming in Contool 2000xp

A B&O remote needs at least one unit with an embedded eye to operate through. Three different units can provide this:

- XP2506B
- XP2606B

[17] You only need to select one of the “All off” buttons for this programming, even though you might have several “All off” buttons in your system. This is because each button which has the “All off” programming method selected will send the exact same event. It is done this way to save programming space in the modules. “All on” operates in the same way.

- XP28B

After having placed a BEO4 and at least one unit with an embedded eye[18], select the BEO4 and afterwards select an eye. This will display a zoom of the BEO4 at the action panel to the left.

The channel group configured at the eye determines which key combinations are available. By default the channel group is set to 0. This can be reconfigured by right-clicking the eye and selecting “Configure”:

Channel group	Available key
0	Symbol keys (5 combinations) • Green • Yellow • Blue • Red • Stop Numeric keys 0 – 11 combined with action keys (60 combinations) • Wind [>>] • Rewind [<<] • Step up [^] • Step down [v] • Go
12	Numeric keys 12 – 23 combined with action keys (60 combinations)
24	Numeric keys 24 – 35 combined with action keys (60 combinations)
36	Numeric keys 36 – 47 combined with action keys (60 combinations)
48	Numeric keys 48 – 59 combined with action keys (60 combinations)

The symbol keys are operated by themselves like any other push panel on a sensor.

Numeric keys can either be one or two digits combined by an action key. The numeric first key will be marked in blue, the second will be marked in green, and the action key will be marked in red. Consequently any numeric key combination is available in 5 variants – and since a channel group decodes 12 numeric key combinations 60 functions are available with each eye[19].

After having selected a key combination, continue programming by selecting an actor like with any other sensor.

11.3.2 Operating the real-life BEO4 remote control

To control the lights the BEO4 must be in the LIGHT mode. To enter this mode, press the [LIGHT] button. Subsequently operate the remote just like when programming the remote in Contool 2000xp.

To summarize the following key combinations are available:

[18] The following units contain an BEO4 eye: XP2506B, XP2606B, XP28B
[19] 65 for channel group 0, since it also decodes the 5 symbol keys.

- [LIGHT] + [SYMBOL KEY]
- [LIGHT] + [NUMERIC KEY(S)] + ACTION

It is not necessary to press the [LIGHT] key if the remote is already in light mode. And when operating functions on the numeric key 0, this key can be left out, since it is the default. Consequently operating consecutive function on key 0 can be done by only pressing action keys.

11.3.3 Programming example

Say you have 3 lights in a living room, controlled by the Conson XP33 3-channel light dimmer.

The lights are numbered 1, 2, 3, and you want to control the lights both individually and as a group, using the [^] for light up, [v] for light down and (GO) for off.

The group functions are added to key group 0. In Contool programming press [0] followed by [^] on the BEO image to the right, and add the increase level function to each of the 3 lights. Then press [0] followed by [v], and add the decrease function to each light. Finally, press [0] followed by (GO) and add the off function to each light.

Then press [1] followed by [^], and add a level increase function to light 1. The rest is programmed in the same manner.

Now all 3 lights can be controlled together with group 0, for instance increasing light level for all lights are done pressing [LIGHT] followed by [^]. To decrease light for light 3, press [LIGHT][20], [3] and [v].

[20] You do not need to press [LIGHT] if the remote control is already in “LIGHT” mode.

12 Fuse box

Modules can be added to the fuse box in four different ways:

1. When sensors/actors are added to the floor plan which requires a module and no vacant modules are available. See 7.2.3 for further details.
2. When modules are added manually using the “Add…” button and dialog located at the action panel associated with the fuse box tab.
3. When detecting modules which only apply to XP 24, XP 31 and XP 33 modules. See 6 for further details.
4. When downloading module data using the download button and dialog located at the at action panel associated with the fuse box tab.

In either case, added modules are placed at the first vacant slot[21] which most likely does not match the real life fuse box.

12.1 Moving modules around

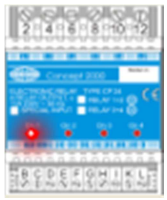
In order to make the virtual fuse box in Contool 2000xp match the real life fuse box, the first step is to identify the module.

This will probably not match the placement in the real life fuse box but it is easy to move the modules around. First, identify which module to move. This can be done in two ways, depending on whether it is a Concept 2000 (CP) or Concept 2000xp (XP) module.

12.1.1 Identifying a CP module

If it is a CP module, the only identification possible is by using the module number field found at the top right corner of the module panel. Consequently, it is important to be very careful to update this field correctly when adding CP modules.

12.1.2 Identifying an XP module

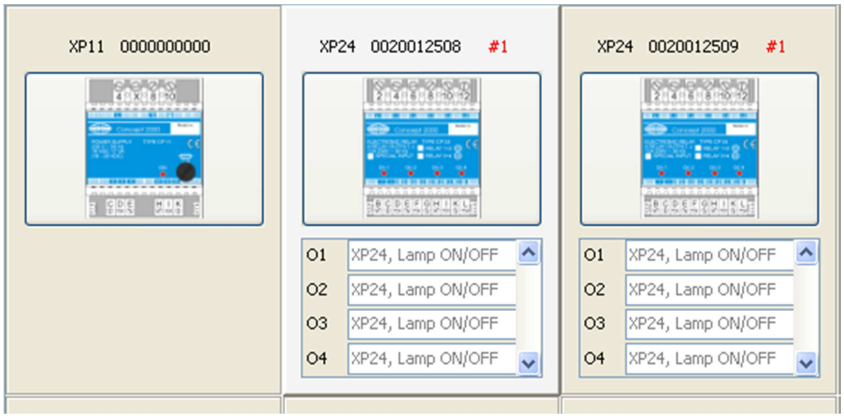


If it is an XP module it is a lot easier. By pressing the thumbnail of the module, it will start blinking – both in the real life fuse box as well as the fuse box in Contool 2000xp.

12.1.3 Moving a module

After having identified a module, it can be moved by pressing the surrounding grey panel, which will highlight the selected panel as shown below. The highlighted panel is the “source” panel and pressing the surrounding grey panel on another module (the “destination” panel) will make the two panels swap place. This can also be done with an empty slot. If you accidentally press the wrong source module, simply press the module again[22].

[21] From the top left corner to the bottom right corner
[22] In order to swap it with itself.



12.1.4 Replacing a broken module

If you need to replace a broken module in a running installation, this can easily be done by following these steps:

If the module is an XP module

1. Start the project in **offline** mode
2. Change the serial number (at the top of the module like “0020012508”) to match the serial number of the new module.
3. Save the project and disconnect
4. Replace the module at the real life fuse box
5. Start the project in **online** mode. In the start up process, the new module will be detected, but since it already exists on the fuse box (due to that fact that the old module has just had its serial number updated)
6. Upload data to the module. It is only necessary to upload data to the newly replaced module.

If the module is a CP module

1. Replace the module at the real life fuse box
2. Start the project in **online** mode
3. Upload data to the module. It is only necessary to upload data to the newly replaced module.

12.2 Uploading data to modules

The upload section is placed at the bottom of the action panel (just above the download section). The upload section is responsible for transferring data from Contool 2000xp to the modules (and the XP sensors).

12.2.1 Installing and detecting the Conbeam (XP78)

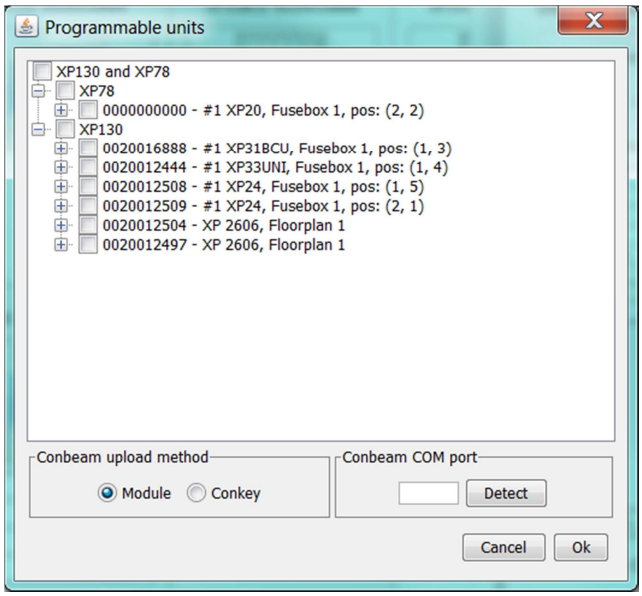
If you need to transfer data to modules from the old Concept 2000 series or the newer XP variants[23], you will need to first install the Conbeam driver which is shipped with Contool 2000xp. Go to the [installation folder]/ConbeamUSBDriver/ and locate the appropriate driver in a subfolder

[23] XP20, XP70A, XP70B, XP70C or XP70D

matching your operating system. Please refer to the installation guides in these folders on how to install the driver.

Once the driver is installed, all you need to do in order to detect the COM port is to press the “Detect” button, which is located in the upload and download dialog displayed after having pressed either of the two buttons. The detected COM port will be entered in the text field by the application. If you know the COM port, you may also enter the information yourself instead of pressing the detect button.

12.2.2 Selecting data to upload


Programmable units
XP130 and XP78
XP78
0000000000 - #1 XP20, Fusebox 1, pos: (2, 2)
XP130
0020016888 - #1 XP31BCU, Fusebox 1, pos: (1, 3)
0020012444 - #1 XP33UNI, Fusebox 1, pos: (1, 4)
0020012508 - #1 XP24, Fusebox 1, pos: (1, 5)
0020012509 - #1 XP24, Fusebox 1, pos: (2, 1)
0020012504 - XP 2606, Floorplan 1
0020012497 - XP 2606, Floorplan 1
Conbeam upload method
Module
Conkey
Conbeam COM port
Detect
Cancel
Ok

Pressing the “Upload” button will display a dialog containing a tree view of all programmable units in the project.

The tree view is organized in two sub trees:

- XP78
- XP130

The XP78 sub tree is only present if any units requiring upload through the Conbeam[24] are present **and** has non-conflicting module numbers.

The XP130 sub tree is only present if any units requiring upload through the XP130 are present **and** these units have a valid serial number. All XP actor modules and all XP sensors are placed in the XP130 sub tree.

Both XP78 and XP130 units have an extra level assigned to them: this level displays information of which units are connected to their inputs (for sensors) or outputs (for modules). This information is available to enhance the overview of each unit.

Moving the mouse over a XP sensor on the list (like “0020012497 – XP2606, Floor plan 1”) will make the application switch to the floor plan containing that specific XP sensor and mark it by displaying its info panel.

The bottom section named “Conbeam upload method” is only of interest if uploading through the Conbeam (XP78). Besides the COM port described in 12.2.1 it holds two options:

- “Module”: to send the data directly to each modules
- “Conkey”: to send the data to the XP79/Conkey. Afterwards, this can be used to transfer the data to each individual module by hand.

Contool 2000xp keeps track of which units are in need of being updated and these will already be selected when opening the dialog. It is possible to change the selection but usually it is recommended to let the application handle which units to update.

[24] Units from the old Concept 2000 and new XP variants: XP20, XP70A, XP70B, XP70C or XP70D

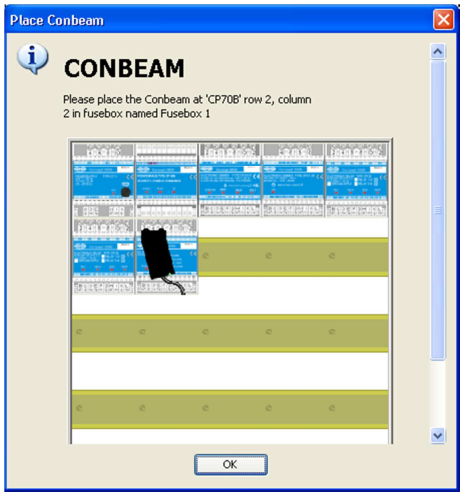
If an installation behaves in an unexpected manner, uploading all units is advisable in order to make sure all units are in sync with data in Contool 2000xp. Do so by selecting the top nodes of the tree view and press “Ok”.

12.2.3 Uploading data (XP130 and XP78)

Most of the upload process is fully automated and all you need to do is to wait for it to finish. When doing so, you can see the progress at the progress bars at the bottom of the “upload” section at the action panel.

The upload runs in the following order

1. XP130 transferring data
    a. XP modules
        i. Action tables for each module
        ii. Setup data for each module
        iii. Contool data for each module
    b. XP sensors
        i. Action tables for each sensor
        ii. Setup data for each sensor
        iii. Contool data for each sensor
2. XP78 transferring data
    a. Action tables for each CP module



Without going into too must details, the **“action table”** holds the programming created in the floor plan by selecting which action a sensor event (like the push of a push panel) will have on an actor.

The **“setup data”** is the setup made by right-clicking an actor on the floor plan (or a module on the fuse box) and selecting “program direct…”

The “**Contool data**” is the most critical data needed to restore a Contool 2000xp project if the project file is lost. Only the modules and sensors programmed through XP130 are able to store the data needed to restore a project.

12.2.4 Uploading data (XP78)

Before uploading each module through XP78, Contool 2000xp will prompt the user to place the Conbeam at the module.

If a connection cannot be established to the module, the user will be prompted once again to move the Conbeam. The connection is very sensitive to both a correct placement over the module as well as direct sunlight or similar.

Placing the Conbeam at the 2nd groove from the left at the module and keeping a distance of about half a centimetre from the top edge of Conbeam to the module usually works well.

The retry dialog also holds the option to skip or to abort. By pressing skip the current module will be skipped while moving to the next module in line. By pressing abort all remaining modules will be skipped. Notice that either option will result in an incomplete upload with no option to rollback the upload done to the modules/sensor prior to skipping or aborting.

12.3 Downloading data from modules

The download section is located at the very bottom of the action panel. Download of data is basically only a last resort if the project file is lost. But it is a very powerful feature since it offers the possibility to restore a project from the most critical data stored in the modules.

Notice that downloading data can only be done in a blank project with no actor or sensors added to the floor plan[25]!

Enough data is stored in the XP modules/sensors to automatically restore a project, while only the basic data is stored at the CP modules. The table below shows exactly which data is restored from the two different types. The “action tables” contain the programmed functions, while the “setup data” holds the direct programming”. The “coordinates…”, “naming…” and “connected…” are also known as Contool data.

The “naming” and “connected actors” are not stored in the CP modules, but at the end of the download a wizard guides you through entering this information for the CP units.

As the table shows not all data are available:

- Naming of the units, the push panels on the sensors and the output of the modules are available for the new Concept 2000xp units, but only at a maximum length of 24 characters.
- Only the first push panel at any channel at an XP28 will be restored.
- The floor plan image will not be restored. Even though the units are placed on their previous coordinates, the background image is not present. Yet it is possible to upload a (backup of the) image which will replace the default image.
- The restored units will be part of the quotation but any discount, extra added units etc. will not be restored.
- The project settings and the name of the project will not be restored either. Notice that all settings in the “Settings” menu are global for the entire application and hence not project related.

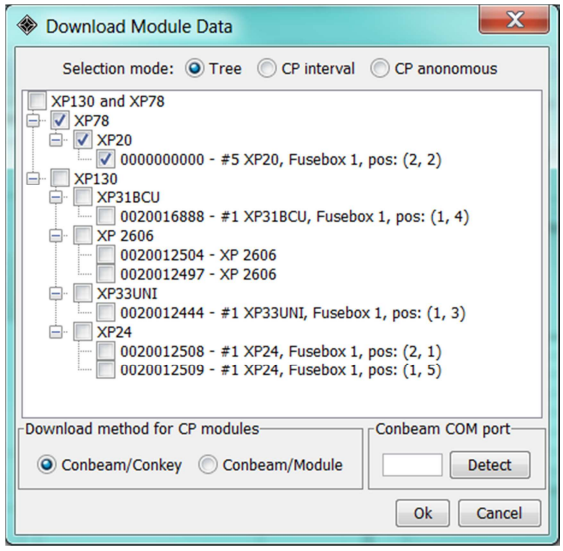
[25] When starting a blank project, all XP modules and sensors will be detected. This is fine as long as no sensors (or actors) are added to the floor plan.

	Action tables	Setup data	Coordinates on floor plan /fuse box	Naming (max. length of 24)	Connected actors/sensors	Floor plan image	Quotation	Project settings
XP modules/sensors	•	•	•	•	•			
CP modules	•	•		(•)	(•)			

Pressing the “Download” button will bring up a dialog with the option to download in three different modes:

- Tree
- CP Interval
- CP anonymous

12.3.1 The tree download mode



The tree download mode consists of a tree view which is somewhat similar to the tree view found in the upload dialog. First of all it also holds two sub trees: XP78 and XP130.

But in the download dialog the units are grouped in sub trees by type. And moving the mouse over a XP sensor does not mark its location on the floor plan.

The tree download mode is the only mode giving access to download XP units through XP130.

Like the upload dialog it supplies an option to select if data from CP modules should be transferred through Conkey/XP79 or directly from each module – as well as entering/detecting the COM port. This option becomes available after having selected a module in the XP78 sub tree.

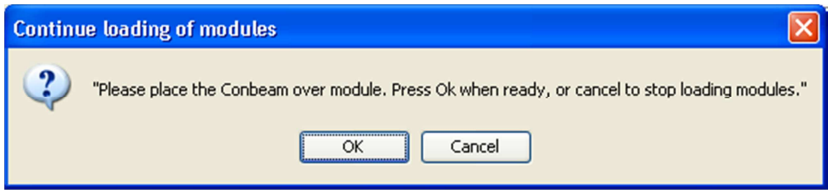
12.3.2 The CP interval mode

This mode makes it possible to enter the module number of the CP modules to download as an interval. The interval accepts both single numbers and ranges – like 1, 3, 5-12.

12.3.3 The CP anonymous mode

The anonymous mode makes it possible to download an unspecified number of modules by simply placing the Conbeam on one module at a time. Since the module numbers are unknown (initially) to Contool in this mode, it is only possible to download directly from a module and not from

Conkey. This mode presents the user with a recurring dialog after downloading each module making it possible to continue with another module (by pressing "Ok") or stop loading more modules (by pressing "Cancel").


Continue loading of modules
"Please place the Conbeam over module. Press Ok when ready, or cancel to stop loading modules."
OK
Cancel

12.3.4 Downloading data (XP130)

The download process is fully automated for Concept 2000xp modules and sensors after having selected units and pressed the "Ok" button.

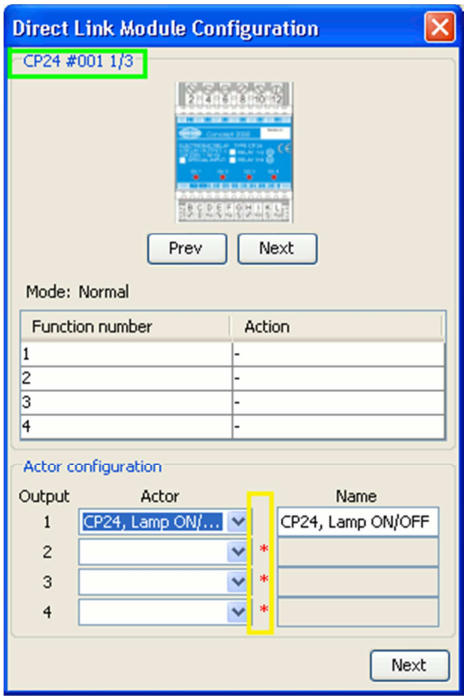
The downloaded data consists of action tables, setup data and Contool data. The action tables and the setup data are simply overwritten in the modules/sensors in the project and together with the Contool data the programmed functions are made visual at the floor plan by restoring actors and sensors at their location alongside with restoring the naming of the units, the push panels and the output/input of the connected modules.

12.3.5 Downloading data (XP78) with wizard

After having downloaded data through XP78 from either one of the three download modes, Contool 2000xp only knows of the action tables and the setup data – but not the Contool data, since this is not available from the old modules.

In order to still make it possible to download data from the old modules, a wizard has been created which takes the user through two steps:

1. Actor modules
2. Link modules



The first step consists of all the actor modules which must have actors connected to their outputs. The green square at the below illustration shows the type of the current module, the module number and sum of downloaded actor modules[26]. The "Prev" and "Next" buttons just below the module image are used to navigate through the available actor modules.

The middle section of the dialog shows the direct programming. In this case the mode (normal) and no functions for the 4 outputs.

The lower section named "Actor configuration" enables the user to select a connected actor for each output. In the yellow square, red stars mark which outputs should have an actor connected based on the downloaded functions in the action table. In this case all four outputs need an actor and the first

[26] The sum is 3 and the first module is currently shown.

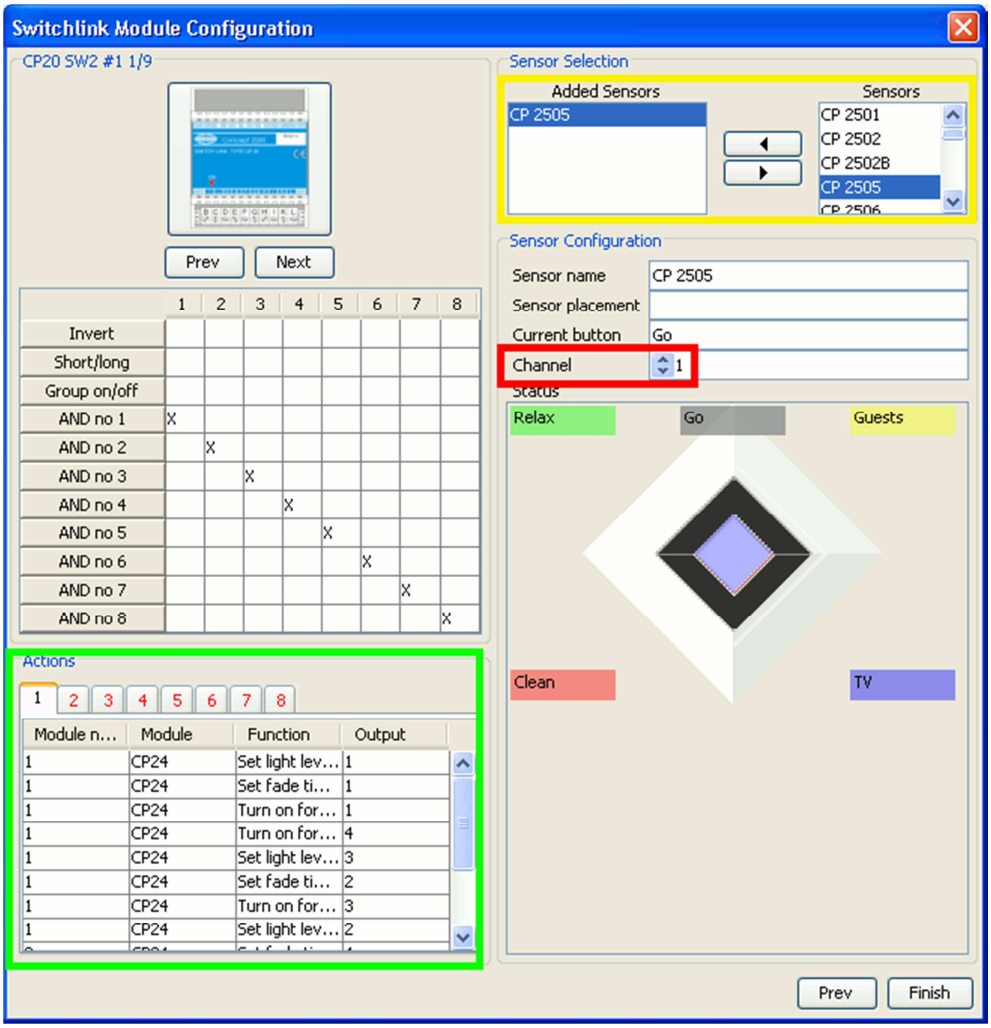
output has already had a “CP24, Lamp on/off” connected. At the right column the actor can be name. By default it is name the same as the actor type. Remember to press enter to exit and save the name when renaming.

When all actor modules have had the actors connected to all “red star marked” outputs, press the Next button at the bottom right corner to go to the second step of the wizard.

The second step of the wizard deals with the link modules[27]. Just like the first step it shows the type, link number and amount in the top left corner.

The “Prev” and “Next” buttons are used to navigate through the modules and below is the direct programming.

The bottom left corner (marked in a green square) holds the eight inputs and their functions. A red number indicates that this input is not yet connected with a push panel.



The part marked in a yellow square holds all available sensor types at the right, and available sensor in the project at the left. The marked sensor is shown at the bottom right corner.

[27] CP20/XP20, CP/XP70A-D

Selecting a push panel works just like it does at the floor plan by enabling the text fields – but also the option to select which channel from the left side to connect to the selected push panel (marked in a red square).

Connect all inputs from all link modules to push panels like described above before pressing the “Finish button”. Doing so will close the wizard and place all new actors on the floor plan to the left and all new sensors to the right. The actors will be organized in the order their connected modules are placed at the fuse box (one row per module) and subsequently by which output they are connected (first output to the far left, last output to the far right).

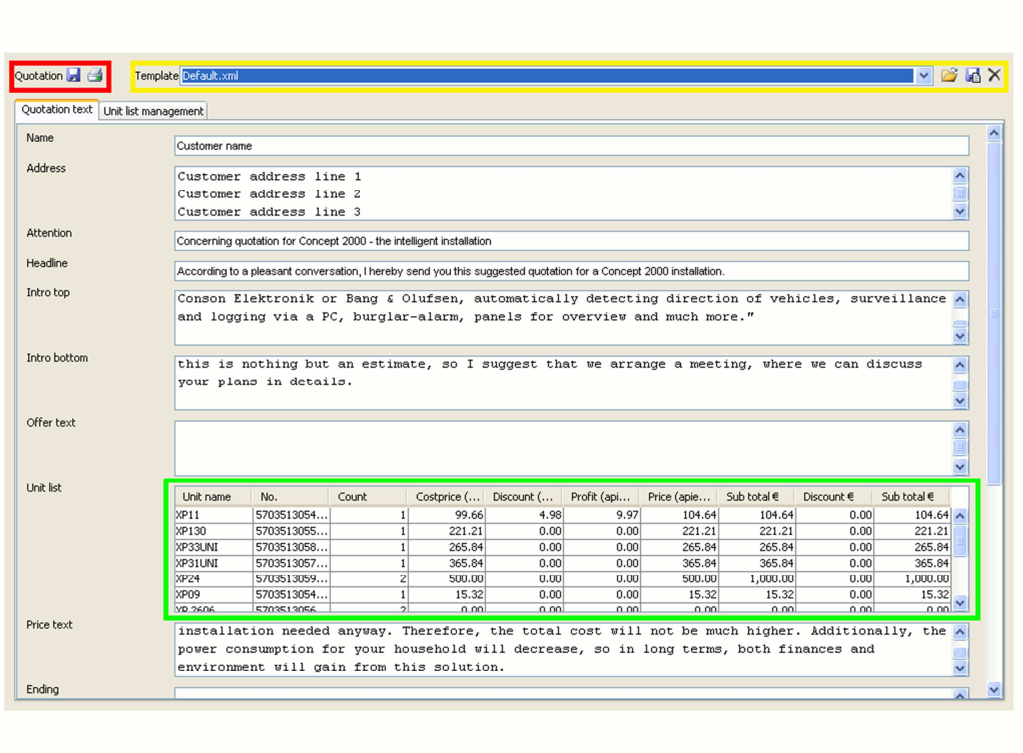
13 Quotation

A quotation module is available in the application to generate quotations, unit lists and simple invoices.

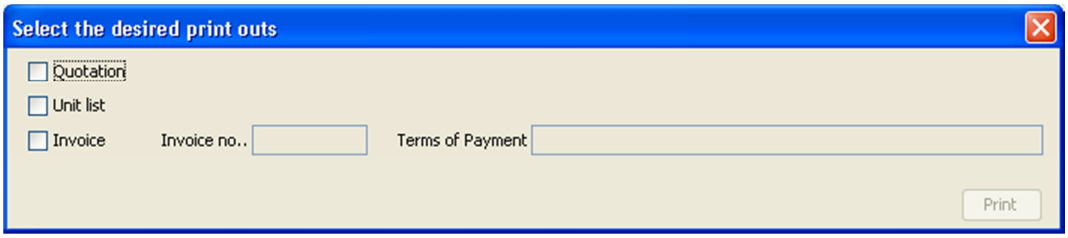
A toolbar is placed at the top of the quotation tab with controls related to the current quotation (marked in a red square) and controls related to templates (marked in a yellow square), which will be described in details later on. Underneath this toolbar are two inline tabs: “Quotation text” and “Unit list management”.

13.1 Quotation (and template)

The inline tab “Quotation text” holds a series of editable text snippets stored in templates. The template is selected in the yellow square, which also holds icons to “save/save as…” and “delete” the currently selected template.


Quotation
Template Default.xml
Quotation text
Unit list management
Name
Customer name
Address
Customer address line 1
Customer address line 2
Customer address line 3
Attention
Concerning quotation for Concept 2000 - the intelligent installation
Headline
According to a pleasant conversation, I hereby send you this suggested quotation for a Concept 2000 installation.
Intro top
Conson Elektronik or Bang & Olufsen, automatically detecting direction of vehicles, surveillance and logging via a PC, burglar-alarm, panels for overview and much more."
Intro bottom
this is nothing but an estimate, so I suggest that we arrange a meeting, where we can discuss your plans in details.
Offer text
Unit list
Unit name | No. | Count | Costprice (... | Discount (... | Profit (api... | Price (apie... | Sub total € | Discount € | Sub total €
XP11 | 5703513054... | 1 | 99.66 | 4.98 | 9.97 | 104.64 | 104.64 | 0.00 | 104.64
XP130 | 5703513055... | 1 | 221.21 | 0.00 | 0.00 | 221.21 | 221.21 | 0.00 | 221.21
XP33UNI | 5703513058... | 1 | 265.84 | 0.00 | 0.00 | 265.84 | 265.84 | 0.00 | 265.84
XP31UNI | 5703513057... | 1 | 365.84 | 0.00 | 0.00 | 365.84 | 365.84 | 0.00 | 365.84
XP24 | 5703513059... | 2 | 500.00 | 0.00 | 0.00 | 500.00 | 1,000.00 | 0.00 | 1,000.00
XP09 | 5703513054... | 1 | 15.32 | 0.00 | 0.00 | 15.32 | 15.32 | 0.00 | 15.32
Price text
installation needed anyway. Therefore, the total cost will not be much higher. Additionally, the power consumption for your household will decrease, so in long terms, both finances and environment will gain from this solution.
Ending

The text of the template is editable, but the layout is fixed. In order to see the layout, press the “Print preview” icon located in the red square. Doing so will open the following dialog which enables you to select the documents you want to have displayed. The “Unit list” and “Invoice” part will be described in their own sections later on.



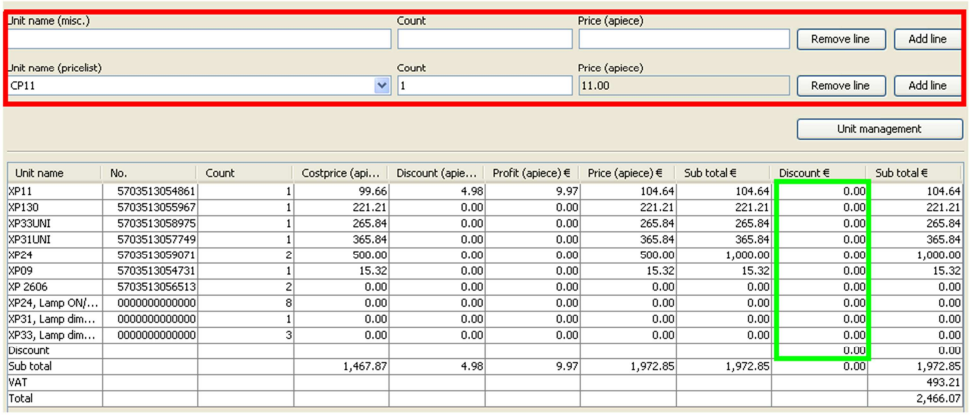
The unit list (marked in a green square) is placed in the middle of the quotation and will be described in the following section.

13.2 Unit list

The inline tab “Unit list management” is mainly used to provide a full view of the economic aspect of the project. All units added at the floor plan and the fuse box tabs are automatically added to the unit list.

13.2.1 Discount

The column marked in a green square is editable except the last row which is an auto-calculated field. This column makes it possible to give a specific discount to any unit on the list – or a total discount at the second last row. In order to hide the discount fields – as well as the cost price, discount, profit and one of the subtotals – go to the “Settings” menu and select the “Hide calculation in quotation” menu item.



Unit name	No.	Count	Costprice (api…	Discount (apie…	Profit (apiece) €	Price (apiece) €	Sub total €	Discount €	Sub total €
XP11	5703513054861	1	99.66	4.98	9.97	104.64	104.64	0.00	104.64
XP130	5703513055967	1	221.21	0.00	0.00	221.21	221.21	0.00	221.21
XP33UNI	5703513058975	1	265.84	0.00	0.00	265.84	265.84	0.00	265.84
XP31UNI	5703513057749	1	365.84	0.00	0.00	365.84	365.84	0.00	365.84
XP24	5703513059071	2	500.00	0.00	0.00	500.00	1,000.00	0.00	1,000.00
XP09	5703513054731	1	15.32	0.00	0.00	15.32	15.32	0.00	15.32
XP 2606	5703513056513	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
XP24, Lamp ON/…	0000000000000	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
XP31, Lamp dim…	0000000000000	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
XP33, Lamp dim…	0000000000000	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discount								0.00	0.00
Sub total			1,467.87	4.98	9.97	1,972.85	1,972.85	0.00	1,972.85
VAT									493.21
Total									2,466.07

13.2.2 Price lists

The pricing is stored in price lists which also are selected in the “Settings” menu. There are two separate price lists:

- Conson price list
- Individual price list

The “Conson price list” holds all prices for the Contool 2000xp, while the “Individual price list” holds all prices for the custom units[28]. All price lists are located two places in the file structure: at a global application scope[29] and at project scope[30]. There are several reasons for this redundancy:

- A global pricelist is needed to be able to equal prices across projects
- A project pricelist is needed in order to successfully export a project to another computer and still keep individual prices. See section 3.1 for an in-depth description of the project files and how to move a project to another computer.

When a project is created, the selected Conson pricelist is copied to the project folder as the project pricelist. By default a global pricelist is selected. In order to switch to the project price list go to the “Settings” menu and select the project pricelist which is marked with a dark background colour.

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[28] How to create custom unit will be explained in detail later on.
[29] at [installation path]/PriceLists
[30] at [installation path]/Projects/[Project name]/Pricelist

13.2.3 Adding and removing units to the quotation

As stated earlier all units added through the floor plan and fuse box tabs are automatically added to the quotation. Besides adding and removing units through these tabs, it is also possible to add units directly to the quotation.

In order to remove placed units from the unit list, go to the “Floor plan” tab in design state and use the arrow controls underneath the top unit list table to remove/un-remove units from the quotation.

In order to add further units to the quotation go back to the “Quotations” tab and the inline tab “Unit list management” and use the controls in the upper part (marked in a red square). The top row makes it possible to enter any text, while the bottom row makes it possible through a drop down list to select any unit found in Contool 2000xp – as well as selecting custom units. The built-in Contool 2000xp units are located at the top of the list while the custom units are located at the bottom. A dotted line in drop down list separates the two.

But notice that all manually added units only appear in the quotation and these units are not available for programming. Furthermore notice that all manually added units are kept at the bottom of the quotation. Even if an automatically added XP11 is present in the quotation, a manually added XP11 will still be kept in its own record at the bottom.

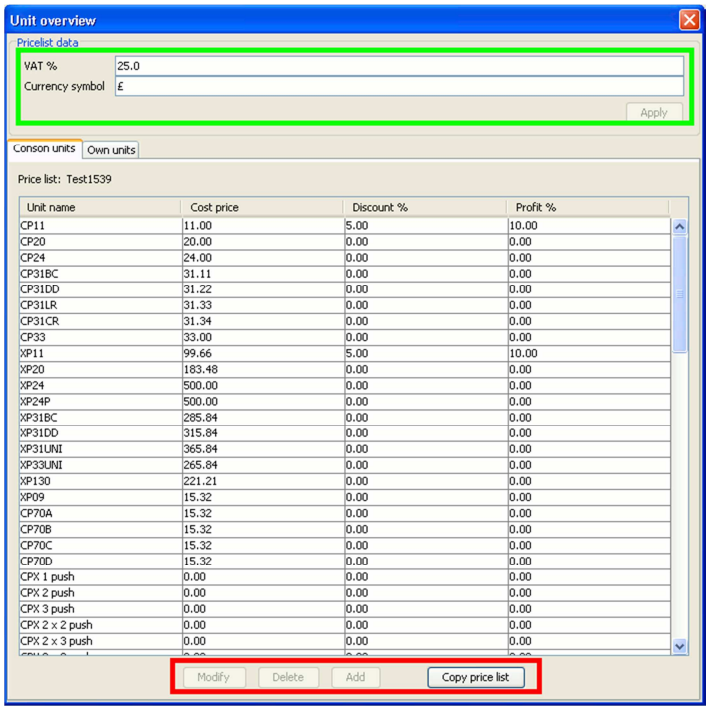
As shown in section 13.1 it is possible to print the unit list, which will respect the hide/unhide calculation setting.

13.2.4 Managing units

The “Unit management” button at the right opens the dialog below. The upper part marked in a green square updates the VAT and currency symbol of both the Conson pricelist as well as the Individual pricelist.

The lower part consists of two inline tabs which update the Conson pricelist and Individual pricelist, respectively. The controls at the lower part marked in a red square only interacts with the pricelist on the selected tab.

Pressing the “Copy price list” button, will open “save as… like” dialog and the new pricelist will automatically be selected. In order to copy both pricelists, this action must be performed on both tabs.

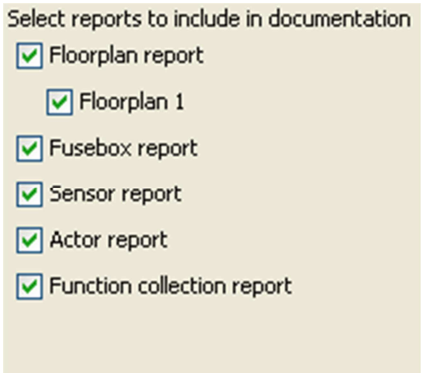


13.3 Invoice

Finally the quotation part of Contool 2000xp is able to print out a simple invoice as shown in section 13.1. The layout is basically identical to the unit list except for “invoice number” and “terms of payment” which are filled out by the user prior to creating the print.

14 Documentation

Documentation is automatically generated from the data present in the Fuse box and the Floor plans tab. The documentation is divided in five reports which can be toggled on/off at the action panel to the left.



The documentation is updated each time the Documentation tab is selected, or a report is toggled on/off.

14.1 Floor plan report

The floor plan report consists of a screen dump of each floor plan followed by a list of the sensors and actors as well as a list of the associated fuse boxes.

14.2 Fuse box report

The fuse box report consists of a graphical overview of the modules present on each fuse box and their placement.

Underneath the graphical overview is a textual overview with all the modules listed in the same order as graphical overview. Each module is listed with its type, coordinates, serial number and a list of the units connected with it's in- and outputs.

14.3 Sensor report

The sensor report lists all sensors. It shows which address[31] each input transmits and a detailed list of the content of each associated function collection.

14.4 Actor report

The actors report lists all actors. It shows its connected module and the sensors affecting the actor as well as detailed information about which function are setup for each actor.

14.5 Function collection report

The function collection report lists all functions which are grouped by the address by which they are triggered. This is referred to as a function collection. Each is listed with details regarding the address, complete content of the function collection, which sensors triggering it and which actors are affected by it.

[31] by link and channel number

15 Timers

Timers can be created to trigger events at a certain point in time. Timers operate on top of programmed functionality from the floor plan. A simply way to explain the timer module is to think of it a pressing a push panel at a pre-defined (and perhaps recurring) point in time.

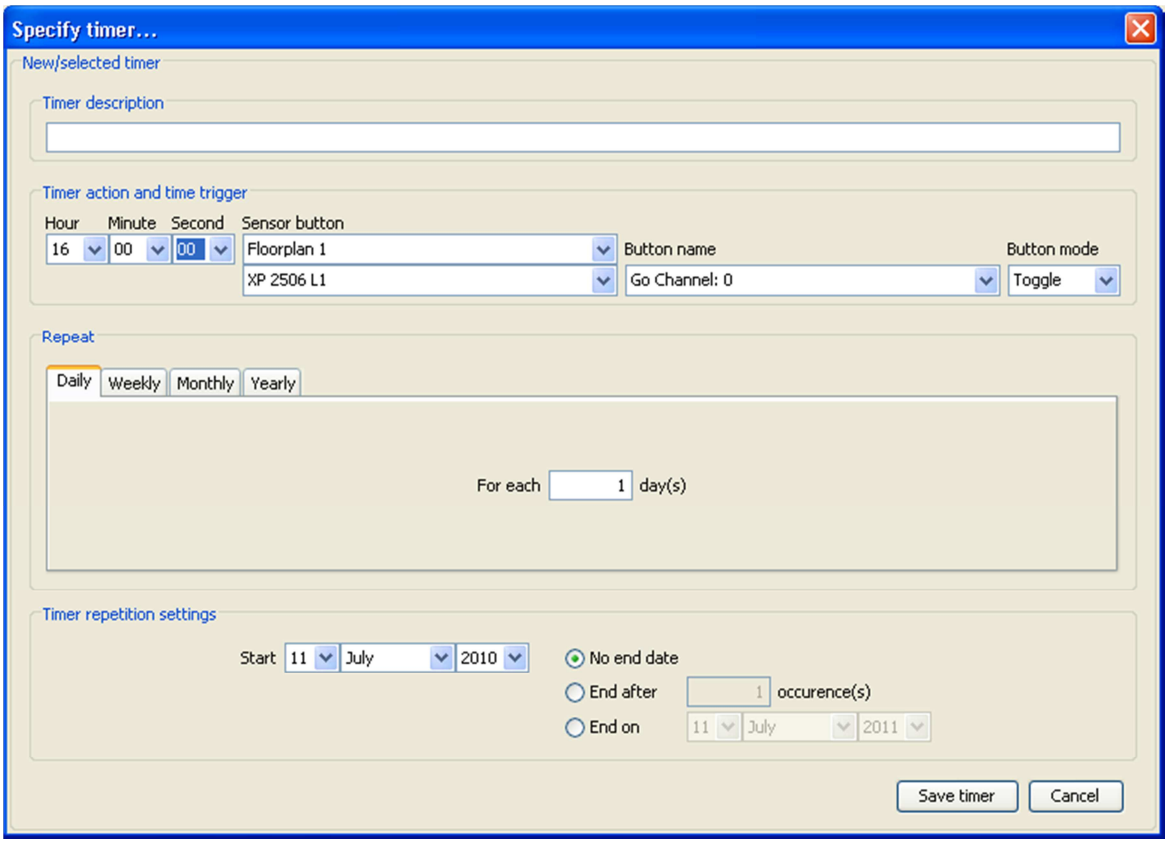
The timers dialog is shown below where you will notice that it consists of four sections explained below in detail.

15.1 Timer description

A short description of the timer function displayed at the list (underneath the dialog)

15.2 Timer action and time trigger

Used to specify the time of day when the timer should be executed and to select which action to trigger. The action is pointed out by selecting a floor plan, a sensor on the floor plan, a push panel on the sensor and finally whether to push, release or toggle[32] the button.



15.3 Repeat

If you are familiar with the calendar function in Outlook, you should find it easy to use, since the functionality is displayed in a similar manner. Basically each tab offers you functionality to repeat the timer on a daily, weekly, monthly or yearly basis.

15.4 Timer repetition settings

This part should also look familiar to user of the calendar in Outlook. This section lets you select the start date of the timer as well as the end date, if the timer is recurring.

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[32] push followed by release

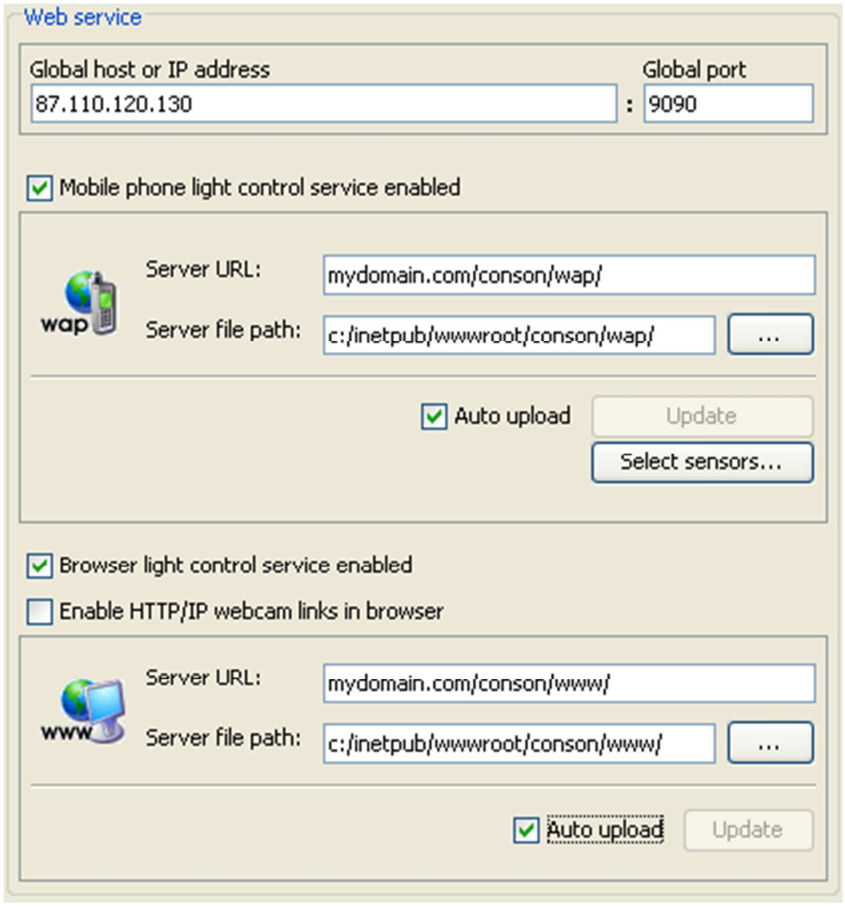
16 Web service

In order to take advantage of the web service in Contool 2000xp, you must have access to a web server and the following description rests on the assumption that you have such access and possess basic knowledge on how to operate a web server.

Contool 2000xp contains a Web service in html and wap format. Both of these offer an interface to operate the functions programmed through Contool 2000xp. The wap format is pure text based, while the html version contains both text and images. Notice that the web service is fully functional but it is currently limited to only display Sesam push buttons.

16.1 Setting up the Web service

The following description is a “generic” description which does not deal with differences in operating system nor network hardware. The image below illustrates a setup similar to the example in the following section.



Important: Both the wap and the www/html setup need file permission to write and modify files and subfolders at the “file server path”.

16.1.1 External access

Which IP/host name to enter in this section depends upon how “remotely” it must be possible to access Contool 2000xp?

1. If Contool 2000xp and web server are installed on the same computer as the access is needed: “127.0.0.1” or “localhost” is the right choice. This is rarely the case but it is sufficient for demo purposed
2. If Contool 2000xp must be accessed from a computer running on the same LAN: the IP address of the network adapter found on the computer running Contool 2000xp is the right choice[33].
3. If Contool 2000xp must be accessed from a computer running outside the LAN: the IP address must be the global IP of the LAN on which Contool 2000xp is installed – or a hostname pointed to the global IP of the LAN. Furthermore the router on the LAN must forward the traffic on the entered port (default 9090) using NAT to the IP address of the network adapter found on the computer running 2000xp.

16.1.2 Wap setup

In order to enable Wap support, start by check the box “Mobile phone light control service enabled”.

The “server URL” is simply the URL to access your web server – e.g. mydomain.com/conson/wap.

The “file server path” must be specified with a drive letter – e.g. C:/inetpub/wwwroot/conson/wap/. Consequently it is far the easiest to have the web server installed on the same computer as Contool 2000xp but if this is inconvenient there are workarounds:

- Third party tools can map an ftp connection to a remote server as a drive letter
- Third party tools can auto-copy files from a local folder to a remote server

The “update” button generates new wap files on the specified “server file path”. And checking “auto upload” makes Contool 2000xp handle this operation automatically whenever events occurs which facilitates changes in these files.

The “select sensors” buttons makes it possible to select which sensors should be included in the wap functionality. By default any new sensor is **not** part of this functionality.

16.1.3 Html setup

This section is nearly identical to the wap setup and to avoid confusion only the differences will be pointed out.

The “server URL” is still the URL to access your web server – e.g. mydomain.com/conson/www

The “server file path” should be different from the wap setup. It could for instance be C:/inetpub/wwwroot/conson/www/.

When updating the www files a few static images are copied to “server file path”/images folder (only on first update) and an image of the current floor plans are dynamically created and copied (on each update) to “server file path”/images/floorplans. The html file contains a WebClip Bookmark which can be used to easily create a link on the home screen of a iPhone/iPad.

[33] On Windows this can be found by running a command prompt and typing “ipconfig” followed by Enter